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ABSTRACT

The methods and findings of studies of the effects and value of preschool education and compensatory education programs, such as Head Start, are reviewed. After introductory comments on ideological controversies and on terminology, section 1 focuses on evaluative studies of the immediate and long-term effects of preschool education and early intervention, and analyzes the studies' contributions and limitations. Section 2 deals with comparative studies of the effects of different preschool curricula on low-income children, reviewing: (1) taxonomies and classificatory models of preschool curricula; (2) Karnes's 1969 study of the differential effects of five programs representing different levels of structure; (3) the Head Start Planned Variation Study, which compared the cognitive, scholastic, and motivational development of children in 12 different programs; (4) the Ypsilanti Preschool Curriculum Development Project, which compared a language training, cognitive, and traditional unit-based curricula; and (5) L. B. Miller's longitudinal study of four preschool programs. Section 3 focuses on studies of the quality of life in preschool settings, including the Oxford Preschool Research Project, the National Day Care Study, and the findings of the National Association for the Education of Young Children concerning the inconsistencies in child care research. Finally, section 4 advocates a move from the process paradigm model of research to an ecological and mediating process paradigm. This section also reviews studies concerning the interaction of home and out-of-home care; the problems, values, and characteristics of caregivers; and the relation between parents' and caregivers' expectations and the official curriculum. A 144-item bibliography is attached. (AC)

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CHILDCARE AND PRESCHOOL EFFECTS

A review of anglo-saxon evaluative studies related to compensatory education and preschool education

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INTRODUCTION : Terminological diversity and ideological dissentions.

A lot of labels are used to designate institutions devoted to the under six children's care. Just consider a non-exhaustive list of the current terms used in the field:*preschool* (sessional, Australia), *preschool program* (as in, Head Start, USA), *day care center* (USA), *infant care center* (USA), *family day care* (USA), *nursery school* (UK, USA, etc.), *nursery class* (UK), *day nursery* (UK, etc.), *reception/transition class* (UK), *playgroup* (UK, NZ, Australia, and others), *under-fives* (UK and others), *infant class or school* (UK and others), *early childhood program, crèche* (several English and French-speaking countries), *child-minders, école maternelle* (France, Belgium), *école gardienne* (Belgium), *garderie* (Canada), *gardiennes encadrées, jardin d'enfants, Kindergarten* (many countries), and so forth.

In addition to the confusion of terms applied to institutions for young children there is some disarray in the occupational titles of adults who work in them (e.g., *teacher, child care worker, nursery nurse, sister, institutrice, enseignante, puéricultrice, Lehrerin, Social pedagog, Erzieherin*, etc.). To some extent these occupational titles are related to the type of employing institution, and to some extent to the type and amount of occupational training they provide and/or require.

This terminological diversity is one major characteristic of pre-primary education which marks it as a "sub-culture" within the general "culture" of education. Without belaboring the historical, social and linguistic causes of this terminological diversity, it is sufficient for our purposes to indicate that these lists reflect the controversies and/or the ideological dissentions (KATZ, 1975) which scientists in the field have to cope with.

No doubt all spheres and levels of education are subject to ideological dissentions. But impressions based on experience suggest that pre-primary education is especially blessed with divergent and ofter deep ideological controversies. To some extent, these controversies are fueled by deep differencies in values and attitudes toward the place of women, the functions of the family, the relevance of schooling, the pressure for industrialization, and so forth. In a very real sense, these ideological disagreements are "close to home" and constitute a central feature of the sub-culture of pre-primary education.

One main issues around which ideological disputes revolve concerns the relative merits of placing young children in day care centers versus being

cared for by mother or a mother-surrogate at home. The accumulated researchs on relevant variables such as attachment, loss, and separation anxiety and the accumulation of reassuring evidences do not impede ideological battle between some moralists or politicians who claim that out-of-home child care threatens family life and feminist groups who press for group care for the young. In front of a research evidence, it is used to hear the objection that "*there are some things tests cannot measure. These are among the most important of all.*"

In the field of elementary education, it is obvious to everybody that reading, writing and mathematic assesments are relevant. Assesment of other competencies (for example, the fluency in a second language) are controversial issues, but there is a large social consensus that the task of elementary teachers is at least to teach reading, writing and computing. Moreover, this consensus is international and allows inter-countries comparisons (see I.E.A.). In the field of pre-primary education, there is very few consensus on a minimal definition of the task that out-of-home child care centers have to accomplish. According to KATZ (1975),

> *"an apparent consequence of the ideological character of early childhood eduction is the development of encampments: Piagetian, behaviorists, neo-Freudians, open educators, etc. Each camp seems to avoid the examination of conterevidence, primarily by rejecting each other's "data" as inadmissable evidence"*(p. 269).

As indicated by some hints from the international study conducted on the pre-primary education by **I.E.A.**, the vivacity of the ideological disputes and, conversely, the importance of the consensus around the merits of pre-primary education vary from country to country.

The examination of the literature seems to indicate that in some countries the value of pre-primary education is recognized and that there is no social neither political demand for scientific demonstration of the effects of this kind of care. It is notably the case of Belgium, France, Netherlands. So, it is interesting to notice that in French and Belgian litterature, teachers explain some school failures by the fact that some children did not attend the *école maternelle*. For them as for parents, the "passage" through the *école maternelle* is an unquestionable prerequisite for success at the elementary level.On the opposite, in other countries, the value of pre-primary education is not recognized ant there is a need for empirical demonstration of positive effects of this kind of care. This is expecially the case in the United States, where one can find the most demonstrative studies of the positive effects of the pre-primary education. Therefore, the following review of littrature is mainly grounded in the anglo-saxon research tradition.

The research on child care effects is closely connected to the compensatory education movement., which emerged in sixties. This movement can be presented as the result of the cunjunction of scientific and socio-economical

factors.

Three scientists have play a significant role at this time :

- B.S. BLOOM with his book *Stabiliy and Change in Human Characteristics*;
- J. Mc. HUNT (1962) with his book *Intelligence and Experience*;
- B. BERNSTEIN (1960) with his paper *Language and Social Class*.

By different ways, all three emphasized the influence of the environement upon intellectual development, contributing thus to weakening the conception of hereditary fixed intelligence. They also defended the idea that the earlier the educational effort, the more significant its effect. On the basis of longitudinal studies of I.Q., BLOOM showed that the correlation between individual successive scores becomes higher whith the age. From this empirical observation, he made the inference that the cognitive abilities are more alterable at the early childhood than during the adolescence or the adulthood.

At the same time, the American Government, concerned with the increase of social equity, tried to provide assistance to socially disadvantaged people. President L. JOHNSON declared the War against Poverty. In this context, the implementation of preschool education programs was politically and scientifically justified. Head Start programs are born in this climate. They are preschool programs initiated on a local basis, but subsidized by federal funds. At the beginning, they consisted in two or three weeks summer session; they rapidly became yearly programs. Parallelly, experimental programs appeared; they were conceived and managed by experts in preschool education, most of them were affiliated at a University.

Since the start of the War against Poverty and the Head Start operation in the sixties, the american research concerning preschool education consists in three kinds or waves of studies, which can be characterized by a particular problematic :

- the evaluative studies try to adress the question "*does compensatory education work*";
- the comparative studies are concerned by the question "*which program works the best ?*";
- studies of the quality of life in the child care setting are concerned by the parameters of child care which have positive effect on the children's development, independantly of the program implemented.

1. FIRST WAVE : EVALUATIVE STUDIES

The first wave tried to answer to the question : **Does it work ?** In other words, **does preschool education make a difference ?** In the first step, the studies were focused on the immediate effects of the preschool programs devoted to the unprivileged children. Rapidly, the question of the long term effect of preschool education was addressed by the researchers. The first generation of studies related to this issue was a bit disappointing and when *BRONFENBRENWER* asked the question *"Is early intervention effective ?"* (1974), it was a way to introduce a search for the conditions in which to make preschool education influential. The second generation of studies in the field are clearly conclusive : **preschool education makes a lasting difference.** The report published by the *Consortium for longitudinal Studies* (1978) but also the *Perry Preschool Longitudinal Study* conducted by *WEIKART* and his team (*SCHWEINHART and WEIKART*, 1980) (*BERRUETA-CLEMENT, SCHWEINHART, EPSTEIN and WEIKART*, 1984) demonstrate that the succes in school and in life of the children who participated in a preschool program is significantly greater than those of the children from the same low socioeconomic status families who did not participate in a preschool program.

In the following sections, we will analyze this evolution.

1.1. IMMEDIATE EFFECTS.

Thus, evaluation was, at first, concerned with verifying the impact of programs on intellectual development comparing "preschooled" children with a control group (composed of non-preschooled children). As Table 1, a review of the American literature indicates preschool programs have most often an immediate effect upon intelligence test and achievement test scores.

	Results indicating significantly superior success in the experimental group on :	
	Intelligence test	Achievement test
W.J. BARRET (1968)	Yes	Yes
C. BEREITER et S. ENGLEMAN (1966)	Yes (Stanford-Binet)	Yes
M. BLANK et A. SOLOMON (1968)	Yes (Stanford-Binet)	Yes (language)
Cincinnati Public Schools	Yes (Boehm Test of Basic Concept)	Yes (PPUT)
H. DEUTSCH (1967)	Yes (Stanford-Binet)	Yes (Preschool Inventory)
J.R. HULAN (19)	Yes (Stanford-Binet)	Yes (Stanford Early School achievement)
H.S. JOHNSON (1965)		Yes (PTT)
M.B. KARNES (1969)	Yes (Stanford-Binet)	Yes (Preschool Inventory)
J.S. LARSEN (1970)	Not mentionned	Yes (Reading Achievement)
R.R. RICE (19)	Not mentionned	Yes
A.W. SCRUGGS (1949)	Yes (Stanford-Binet)	Yes
M.A. SPRIGLE *et al.* (1965)	Yes (Stanford-Binet)	Yes (Preschoo Inventory)
V. VAN DERIET *et al.* (1973)	Yes (Stanford-Binet)	Yes (Preschool Inventory)
D.P. WEIKART (1967)	Yes	Yes

Table 1 : Research relative to the immediate effects of preschool programs

1.2. LONG TERM EFFECTS.

The question of whether preschool intervention programs have more than a temporary impact on the development of lower classes children has been a controvert issue during a long time.

The optimism, supported by the first wave of findings on the immediate cognitive benefit of preschool education, was rapidly shattered by the first national evaluation of Project Head Start proceeded by the Westinghouse Leaning Corporation and Ohio University, CICIRELLI, 1969). According to this study, the project had almost no positive impact on cognitive measures.

Although a reanalysis of SMITH and BISSEL (1970) suggests that some full year Head start centers were effective, various interpretations for explaining this failure were proposed. BARATZ and BARATZ (1970) contested the underlying assumptions of intervention programs which did not recognize the existing cultural forms of the lower classes because these differ from the mainstream standard. EKLIND (1969) argued for later intervention (during the elementary school years) whereas HUNT (1969) argued for earlier intervention (during infancy). JENSEN (1969) adopted a more radical position since he argued that early intervention does not work because it seeks to change I.Q., but I.Q. is largerly a matter of heredity and therefore cannot be permantly altered.

1.2.1. FIRST GENERATION OF LONGITUDINAL STUDIES.

Further reports principally based on local experimental studies[1] brought a new controversial body of results.

In the first report published by the U.S. Department of Health, Education and Welfare under the direction of RYAN (1974), WEIKART (1974) noticed that the significant superiority of experimental children who participated in a two-year intervention program which focused on cognitive objectives over control children on various achievement tests, disappeared by the end of the second grade. At the opposite, DEUTSCH (1974) reports that experimental children who participated in a one-year early intervention program emphasizing self-paced independent learning, "scored significantly higher than the controls on Stanford-Binet and the Peabody Picture Vocabulary Tests at the end of kindergartend and third grade, on the Lorge-Thorndike Intelligence tests at the close of first and second grade, and of a reading prognosis test given at the end of kindergarten". However, the DEUTSCH's experimental children enter into an elementary school with the continuance of the same curriculum type. Long-term effects in the form of the experimental group's significant I.Q. gain over the control group has also been reported by SPRIGLE (1974) and GRAY (1974). As mentioned by RYAN, "one difference between WEIKART's program and that of DEUTSCH, SPRIGLE and GRAY is the latter three provide some types of continuance into public school, either in the form of curricular or parent home training, whereas Weikart's does not".

This remark is also congruent with the ABELSON's (1974) longitudinal study of Head Start and non-Head Start children in Follow-Through and Traditional schools.

> *"The Head Start graduates who attended the enriched school entered programs of Follow-Through Center continued to show improvement in their verbal I.Q., but neither Head Start graduates or non-Head Start pupils in regular school programs made further I.Q. gains leaving kindergarten".* (ABELSON, 1974, p. 137)[2]

In the HERZOG's study, children who participated in an experimental program from two years of nursery school through second grade and entered regular classes at the completion of the second grade, scored higher than control children on Stanford-Binet Tests through kindergarten. After kindergarten, both experimental and control group scores declined until at the end of second grade difference was non-significant. But further analyses indicate that the child's response to intervention was infuenced by

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1 Indeed, next the National Head Start initiated in Summer of 1965, scientifically designed (but locally implemented) early intervention studies were also initiated during the sixties.

2 The small number of non-Head Start graduates included in Follow through showed also increased gains... Is this fact an indication that Follow Through experience is the most important factor ? Abelson remarks only : "Whether this would have occured in the Follow Through program if the majority of children had not had Head Start experience is, of course, a question which cannot be answered ?" (p. 2).

the degree of deprivation in his home environment[3] : the less deprived retained more. The HERZOG's observation may be interpreted as an indirect confirmation of the GRAY's suggestion that the family has to act as a bridge to provide stability transition from intervention to school setting.

According to this author,

> *"An effective early intervention program for a preschool child, be it ever so good, cannot possibly be viewed as a form of innoculation whereby the child is immunized forever after ward to the effects of an inadequate home and a school inappropriate to his needs"* (GRAY, 1974, p. 67).

Therefore, it is not plausible to think that preschool intervention

> *"could have a lasting effect without considerable reinforcement from the child's home environment and from his subsequent schooling"* (GRAY, 1974, p. 67).

Preschool attendance may provide to children a basic progress upon which the schools and the homes can build.

Similar themes emerge with a particular emphasis from the second report published by the U.S. Department of Health, Education and Welfare. From the examination of seven major preschool projects selected on the basis of three methodological criteria (availability of matched control groups, comparability of measures and availability of follow-up data for at least two years after the completion of the program), BRONFENBRENNER (1974) concluded :

> *"By the first or second year after completion of the program, sometimes while it was still in operation, the children began to show a progressive decline, and by the third or fourth year of follow up had fallen back into the problem range of lower 90's and below"* (p. 52).

The short-range effects were encougaring since experimental children from each program

> *"showed substantial gains in I.Q. and other cognitive measures during the first year of the program attaining or even exceeding the average for their age"* (BRONFENBRENNER, 1974, p. 52)

but these gains tend to fade out when children attended the elementary school, unless an intervention program continued.

BRONFENBRENNER reviewed also seven studies focused simultaneously on parent and child as the targets of intervention. He concluded :

> *"Parent-child intervention resulted in substantial gains in I.Q. which were still evident three to four years after termination of the program"* (p. 5).

---

[3] Utilizing a combined index based on the number of years of education of the child's mother and the ratio of persons per room in the home, Herzog reclassified the children from disadvantaged families into a low and high group. Then, the analysis revealed that children in the relatively less deprived group gained more from the program and retained a larger proprotion of their gains. In fact, two years after completion of intervention, only the more favored group showed a statistically significant difference between experimental and control children.

Another result is of great interest. Children who were involved in parent intervention's programs and who participated in a group program, achieved greater and more enduring gains...

> *"Thus, from the third year onward, parent intervention seemed to serve as a catalyst for substaining and enhancing the effects of group intervention"* (p. 54).

The role of the parent-child system seems to be of great importance.

> *"It is as if the child himself had no way of internalizing the process which foster his growth, whereas the parent-child system does possess this capability"* (p. 54)[4].

---

4 However, parent intervention have limitations since "research findings indicate that, at the most deprived levels, families are so overburdened with the task of survival that they have neigher the energy nor the psychological resources necessary to participate in an intervention program involving the regular visit of a stranger to the home" (p. 54). Therefore, Bronfenbrenner suggested an ecological intervention which consists in providing to those families the material opportunities and in valorizing the status of parenthood. These conditions appear to be necessary "for the familiy to function as a childrearing system" (p. 55).

1.2.2. SECOND GENERATION OF LONGITUDINAL STUDIES.

THE CONSORTIUM FOR LONGITUDINAL STUDIES[5]

As indicated by its names, *the Consortium for longitudinal studies* regroups several studies, fourteen exactly. The table 2 gives a brief description of the studies which were integrated in this collective endeavor.

PROGRAM	PRINCIPAL INVESTIGATOR	LOCATION	TYPE OF DELIVERY SYSTEM	AGE AT INTERVENTION	YEARS OF PROGRAM
The Philadelphia Project	Dr Kuno Beller	Philadelphia	Center-based	4-6	early '60's
Institute for Developmental Studies	Drs Martin & Cynthia Deutsch	Harlem	Center-based	4-8	late '50's early '60's
The Parent Education Program	Dr Ira Gordon	Northern	home-based	3 mo - 3	mid '60's
The Early Training Project	Dr Susan Gray	Murfreesboro or Columbia, Tenn.	combination	4-5	eraly '60's
The Family-Oriented Home Visitor Program	Dr Susan Gray	Nashville, Tenn.	Home-based	0, 1	early '70's
Curriculum Comparison Study	Dr Merle Karnes	Champaign-Urbana, Ill.	Center-based	4	mid '60's
The Mother-Child Home Program	Dr Phyllis Levenstein	Long Island	home-based	2-3	late '60's eraly '70's
Experimental Variation of head Start Curricula	Dr Louise Miller	Louisville, Ky.	center-based combination	4	mid '60's
Harlem Training Project	Dr Frank Palmer	Harlem	center-based	2-3	mid 60's
Perry Preschool Project	Dr David WEIKART	Ypsylanti, Mich.	combination	4	early '60's
Curriculum Demonstration Project	Dr David WEIKART	Ypsylanti, Mich.	combination	3-4	mid '60's
Carnegie Infant Program	Dr David WEIKART	Ypsylanti, Mich.	home-based	3 mo - 2	late '60's
Micro-Social Learning System	Dr Myron Woolman	Vineland, NJ.	center-based	4-5	late '60's
Head Start & Follow Through New Heaven Study	Dr Edward Zigler	New heaven, Conn.	center-based	5	mid '60's

Table 2 : Brief description of the 14 studies incorporated in the consortium for longitudinal studies.

In the secondary analysis of the data, assignment to special education classes and whether a child has held back in grade were used as indexes of long term effectiveness. This methodological innovation is justified by the authors as follows :

> *"the advantage of using these two outcomes as measures of effectiveness of early education programs is that they are concrete and stringent indicators of whether a child has performed acceptably within his or her educational*

---

5 The Consortium for Longitudinal Study was supported by the U.S. Administration for Children, Youth and Family for poling data from earlier longitudinal studies and collecting new complementary data. A central staff was established at Cornell University under the leading of LAZAR. Each individual investigator was reponsible for reporting findings of his or her own study. At Cornell, Lazar and his colleagues undertook secondary data analysis.

institution" (LAZAR , 1977, p. 20).

The analysis revealed a reliable program effect. Early intervention reduces the number of students assigned to special education classes and the number of students held back in grade. On the basis of these findings, *LAZAR* and his colleagues conclude that

> *"early education programs can in some way improve the ability of low-income children to meet the requirements of their school"* (1977, p. 28).

Indeed, some programs are less efficient than others. In order to identify the influential component of early intervention, three groups of programs were distinguished : center-based, home-based and interventions combined both components (see table 1). *LAZAR* concludes that

> *"all the projects which found significant effects on special education either were home visiting programs or had some visiting components"* (1977, p. 28).

Moreover, in a most recent secondary analysis, *LAZAR & DARLINGTON* assert that

> *"the family environment was also apparently affected. Specifically, mothers of children who attend preschool had higher vocational aspirations for their children than the children had for themselves. This discrepancy was not found in mothers of control children"* (LAZAR & DARLINGTON, 1979, p. 20).

Thus, one may hypothesize that the long-term effects of preschool intervention

> *"is due in part to increased parental concern and competence to deal with the school system - an indirect effect of parental sensitization by the preschool experiences of their children"* (LAZAR, 1977, p. 28).

This finding confirms the main conclusion of the *BRONFENBRENNER*'s report from 1975. With the *BRONFENBRENNER* 's report and the findings of the Consortium for Longitudinal studies, emerges a new understanding of the role that early education can play in the development of children: **early education can affect child developemnt on a long range if the familial micro-system has been influenced**.

The effect of preschool intervention on cognitive abilities and especially on I.Q measures was also a problematic issue. Indeed, at this time, it currently was observed that early intervention has only a short-lived effect on I.Q scores (two or three years). However, the path analysis conducted by *LAZAR & DARLINGTON* (1979) indicates that

> *"I.Q scores at age 6 and preschool attendance importantly affected later school performance"* (p. 19)

as measured by avoidance of placement in special education.

Moreover, a path between attendance of a preschool program and the I.Q scores is observed (see figure 1).

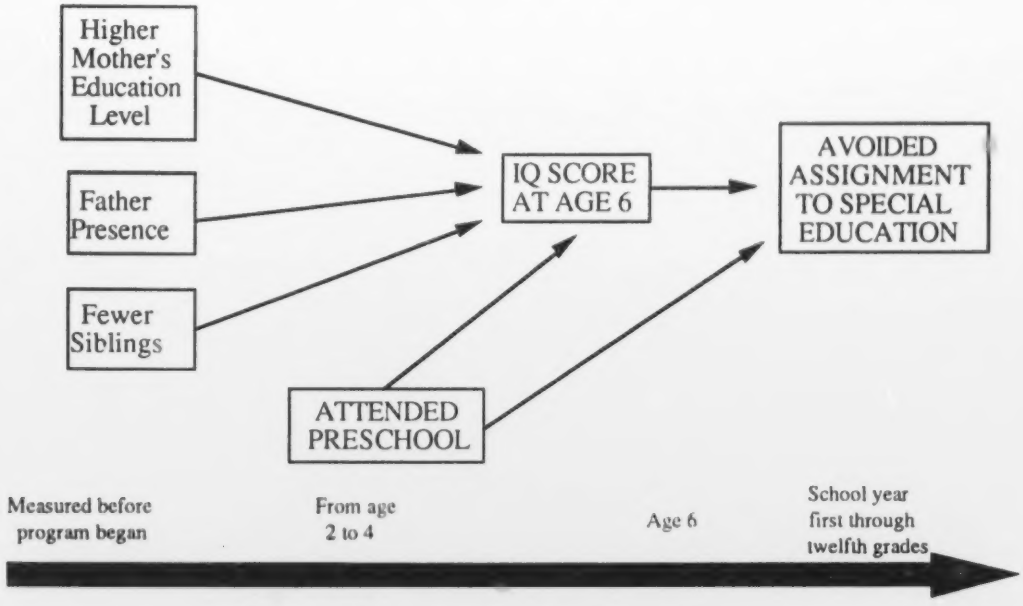


Figure 1 : Assignment to Special Education Classes : Diagram Showing Network of Variables Suggested by Data, Significant Paths Only (Lazar and Darlington, 1979, p. 18).

According to the authors, it can be supposed that preschool intervention influences the intellectual functioning of children during a critical period : this one of the entrance in school. However, *LAZAR & DARLINGTON* remarked :

> *"by partialling out the effect of preschool on I.Q scores at age 6, we essentially found that the preschool affected children in ways that were relevant to school performance but not related to cognitive skills and abilities. Perhaps children's achievement motivation, values, aspirations or coping style were influenced ... Perhaps children's classroom behaviors were affected ... Children's families may have been influenced by, for example, changing parents' perceptions of their children, affecting the family dynamics, increasing their hopes for the children's future".*

It is the merit of the *Perry Preschool Longitudinal Study* to cope with these questions.

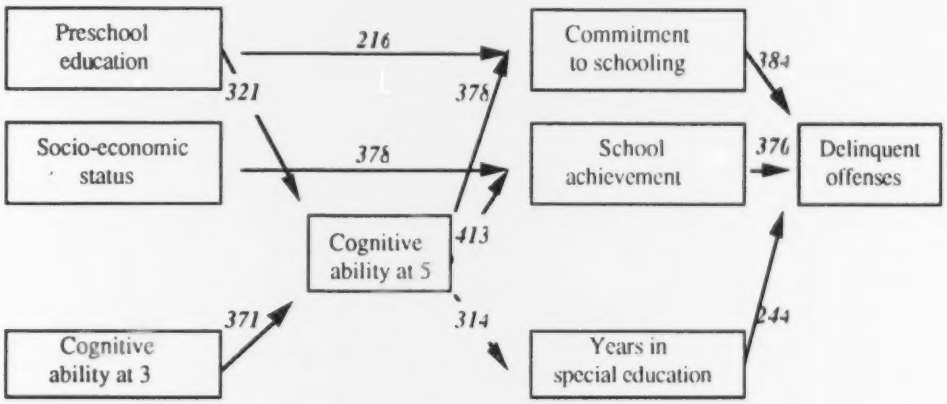
THE TRANSACTIONAL APPROACH OF THE HIGH SCOPE FOUNDATION.

SCHWEINHART & WEIKART (1980) suppose a causal model where the effects of preschool intervenetion become causes of other effects.

> *"Our basic approach has been transactional, emphasizing the changing relationship between the individual and the environment over time. The analysis began with children in poverty. Despite a variety of adaptive strengths, the poor child experience conditions which inhibit development and may lead to school failure. Preschool education provides extra cognitive stimulation for such children, leading them to demonstrate greater cognitive ability at school entry. Then the rigid stratification process of the school takes over, and they must assume defined positions with respect to school success or failure. Throughout their years of schooling, they perform in terms of this student role - believing it themselves, forming a level of commitment to schooling consistent with their expectations for success or failure, and even attaining a level of school achievement consistent with their expected position. Teachers, parents, and peers accept this position and reinforce it, so that everyone, including the child, has similar expectations and supporting attitudes for the child's scholastic accomplishments. Eventually, school success becomes life success. To the extent that the child has been successful in school, the adult is successful in educational attainment, occupational status, and income. To the extent that the child has failed in school, the adolescent, aided and abetted by like-minded peers, finds it reasonable to assault the school and the community through deviant behavior - demanding, in the final analysis, a degree of attention denied by all the conventional channels for approval"* (SCHWEINHART & WEIKART, p. 15).

Data were collected for 123 children from age 3 to age 25. The total sample is composed by 65 control children and 58 experimental ones who attended a group preschool program weekday mornings and were visited along with their mothers at home 1 1/2 hours a week during age 3 and 4.

Path analysis has been performed on the data. Their results are presented in the figure 2.



NOTES : Coefficients are beta weights, each controlling for all other variables with arrows into the variable in question. Arrows and coefficients appear only when the relationship has a statistical significance of p less than 05. Where variables in different phases are not connected by arrows, there was no statistically significant relationship. (from SCHWEINHART L & WEIKART D P, 1980).

Figure 2 : Causal Model for the Perry Preschool Study

Preschool education improves cognitive ability at school entry and influences the commitment to schooling. The cognitive ability at age 5 is the core of the model since it affects positively the commitment to schooling and the school achievement and reduces the probability to be assigned in special education. These three last variables predict the frequency of delinquence but in various senses : commitment to schooling and fewer years in special education lessen delinquent offenses, while achievement gives rise to more delinquent offenses[6].

The theoretical framework of *SCHWEINHART & WEIKART* is globally confirmed. However, the authors remarked :

> *"the direct relationship between commitment and preschool education suggests that the direct effects of preschool were motivational as well as cognitive. It was assumed that commitment to schooling began as a response to school success. The data suggest a slight reformulation : commitment began as a response to a cognitively stimulating preschool environment"* (SCHWEINHART & WEIKART, p. 66).

One of the most interesting aspect of the *SCHWEINHART & WEIKART* is its grounding in the application of role theory to education and especially to classroom events. The influence of the seminal book of *JACKSON* ***"Life in classroom"*** is obvious. As this author, *SCHEINHART & WEIKART* hypothetise that when an individual comes into a new environment and

6 For an explanation of this finding, see SCHWEINHART & WEIKART, op. cit., p. 66

interacts with it, he demonstrates a way of performing and, at the same time, he formulates a role and pattern of commitment which rapidly gives rise to social responses congruent with this role. By improving the cognitive ability of the children, preschool education helps these children to construct a role conducive to success and leads others (teacher, parents and peers) to have and to communicate expectations which maintain and perhaps enhance children in this role.[7] In this approach, motivation, performance and social support are three facets of an experiential, dynamic interaction between the individual and the environment. As the authors said (p.12):

> *"The person who is highly committed to schooling and who receives social reinforcement for a success-oriented student role is, of course, the one most likely to meet the objectives of schooling and does well in terms of school achievement. But it is equally true that the person who does well in terms of school achievement, all other things being equal, is most likely to become more committed to schooling and to receive social reinforcement for a success-oriented student role".*

New data have been collected when the subjects are 19 years old (BERRUETA-CLEMENT, SCHEINHART, BARNETT, EPSTEIN & WEIKART, 1984). The High Scope team has looked for preschool effects on

- school success;
- social responsability;
- early socioeconomic status.

They noticed positive effects of preschool on each category of criterion variables.

School success

Through age 19, youths who had attended preschool have fewer failing grades and better marks than the non-preschool subjects. They also have higher scores than those with non-preschool on a measure of competence in skills of everyday life (the Adult Performance Level Survey). Their attitudes toward high school are also more favorable than those ones of non-preschoolers.

Social Responsability

Fewer of the preschool subjects had ever been arrested, and that group also had a lower median score on a scale measuring delinquent-event frequencies weighted by seriousness. Fewer pregnancies and births had been recorded in the preschool group than in the non-preschool one.

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7 According to Schweinhart and Weikart, intervention at the preschool ages is important because it increases children's cognitive abilities for the school entry, "a time when the positions of children within the social system of the school are being determined" (p. 10). This last assumtion is based on the ethnographic strudy of RIST, according to whom "there occurs within the classroom a social process whereby,(...) there emerge patterns of beahvior, expectations of performance, and a mutually accepted stratification system delineeting those who do not well from those who do poorly" (cf. RIST, cited by SCHWEINHART & WEIHART, p. 10).

Early Socioeconomic Status

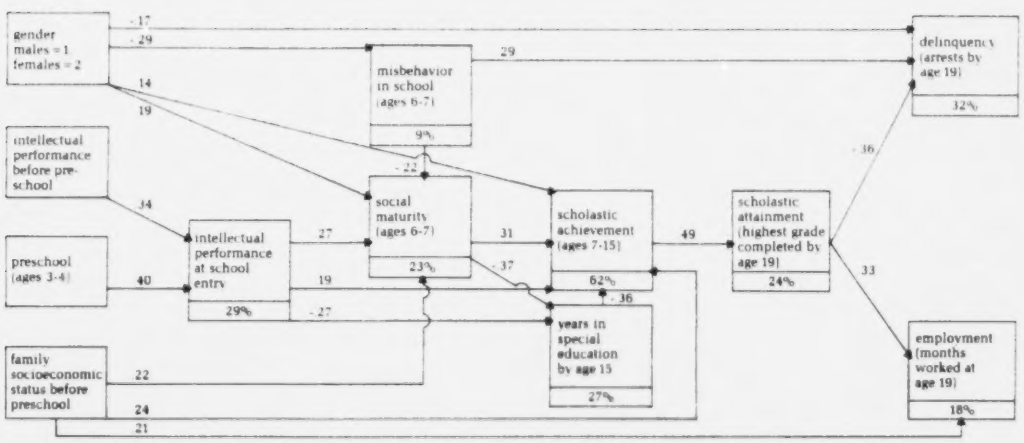
Through age 19, youths who had attented preschool have higher level of employment than the non-preschool subjects. Since leaving school, those youths who particpated at the preschool program have spent fewer months unemployed than subjects of the control group; they also reported higher incomes and more satisfaction with their jobs than non-preschool subjects. So, early education led subjects to be more likely to be supporting themselves on their own than the others. Those who didn't participate at the preschool program report receiving more public assistance than the preschool subjects.

Economical benefits can thus be expected from preschool education. For BERRUETA *et al.*, who develop several cost and benefit analyses, public ressources should be allocated for preschool services.

Path analysis has been performed. Figure 3 presents the chain of causes and effects from preschool to early adulthood; each arrow indicates a hypothesized link between two variables confirmed by the statistical analysis (two-tailed $p < .100$). Again, the findings fit the causal model hypothsized by SCHWEINHART & WEIKART (1980).

Figure 3

A CAUSAL MODEL FOR EFFECTS OF THE PERRY PRESCHOOL PROGRAM IN THE CONTEXT OF IMPORTANT BACKGROUND VARIABLES AND INTERRELATIONS



Note. Analyses are based on $n = 112$. Causal paths are indicated by arrows joining variables, with direction of the arrows from cause to effect. Path coefficients are beta weights in ordinary-least-squares regressions; arrows connect variables only if paths are significant (at $p < .10$, two-tailed). The directions of paths between variables measured at the same time points are dependent on the model's theoretical framework and should be interpreted with caution. The percent presented at the bottom of each variable is the percent of variance in that variable accounted for by statistically significant predictors.

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1.3. CONTRIBUTION AND LIMITS OF THE LONGITUDINAL EVALUATIVE STUDIES OF PRESCHOOL'S EFFECTS.

1.3.1. CONSISTENCY OF THE FINDINGS : THE HEAD START SYNTHESIS PROJECT.

Since the reports of GRAY and BRONFENBRENNER in 1975, findings of the studies are consistent. The ambitious meta-analysis performed by CSR Inc at the request of the U.S. Administration for Children and Youth and Families on the Head Start studies conducted between 1965 and 1984 reinforce this consistency.

The Head Start Synthesis Project involved the collection of over 1,600 documents related to Head Start and the analysis of 210 reports of research on the effects of local programs. The meta-analysis technique (GLASS, 1976) has been applied on 76 studies. Among these studies, 72 investigated gains in cognitive ability, 17 tested for socioemotional gains (self-esteem, social behavior, and achievement motivation), and 5 measured family impacts. Some studies also examined retention in grade and placement in special education classes.

The 72 studies who investigated the immediate effect of Head Start on children's cognitive ability (intelligence, school readiness and achievement test) are virtually unanimous to show positive significant gains (table 3).

	Treatment / control studies	Pre / post studies
I.Q.	.59	.43
Readiness	.31	.59
Achievement	.54	.37
Composite	.52	.48

Table 3 : Effect size of the 72 studies identified in the CSR report as studies investigating the immediate effect of Head Start on children's cognitive ability.

However, this effect on cognitive ability does not persist over time.

> "One year after Head Start, the differences between Head Start and non-Head Start children on achievement and school readiness tests continue to be in the educationnally meaningful range, but the two groups score at about the same level on intelligence tests. By the end of the second year, there are no educationally meaninful differences on any of the measures" (CSR, 1985, p. 8).

But, Head Start affect long-term school success of the children. This finding is congruent with these ones of the Consortium for Longitudinal Studies and of the SCHWEINHART & WEIKART study. CSR also finds immediate positive significant effects of Head Start on children self-esteem (effect size = .17), achievement motivation (effect size = .22) and social behavior (effect size = .35). It still shows that Head Start has positive effects on children's health and motor development. An important proportion of parents participate in various program activities and most of them see benefits to their children that are consistent with program goals and they also see many benefits to themselves.

Four other interesting findings can be mentionned:

- Highly structured academic curricula produce significantly larger immediate gains than traditional, cognitive or Montessori programs. However, by the end of the third year after Head Start, the difference has disappeared.

- Theory-based curricula, and especcially the Piagetian ones, produce higher achievement motivation scores than non-theory based curricula.

- Treatment-control studies find that longer (6 to 8 hours) Head Start days are related to significantly higher immediate cognitive effects than are shorter (2.5 to 5 hours) sessions. This finding is not confirmed by pre-post studies.

- Children from Head Start classes with mixed proportion of minority children (70 to 90 percent) show higher effects on achievement motivation than children from classes with a very high proportion (90 to 100). This result was found at the end of the Head Start year and each year of the three following years.

So, a large body of consistent findings on preschool's effects is available. Moreover, SCHWEINHART and WEIKART have proposed an explanatory model which is consistent with the results of several path analyses.

1.3.2. TOWARD AN ENLARGMENT OF THE TRANSACTIONAL PERSPECTIVE.

One may regret that SCHWEINHART and WEIKART had postulated that this transactional process occurs only from the children's school entry. Not only, one may assume like these authors that preschool education had a direct effect on motivation (commitment to schooling), but it is also reasonnable to suppose that the effect of early intervention spreads directly to the family of the child (as well as to the community) in enhancing the perental child-rearing role and concern. Findings from older researchs support this hypothesis. In her study, GRAY (1974) reported that younger siblings of her experimental children qere superior to the younger siblings of the control children in I.Q. test. Moreover, it is coherent with the body of evidences which demonstrate the effect of the home interventions and with the BRONFENBRENNER's thesis concerning the ability of the mother-child system to sustain the effects of group intervention.

This hypothesis is congruent with the more general idea that gains realized through participation at a preschool program have to be supported by a child-social environment transactional process. As asserted by SCHWEINHERT AND WEIKART (1980), "*Cognitive ability is always under the influence of the environment*" (p. 76) and, conversely, the child's way of performing influences his social environment. It is not by itself that early education can have lasting effect, but it can be the basic element of a transactional dynamic between the child and the others.

If this transactional perspective is accepted, the clarification of the process requires that one extends the focus of the evaluation. Traditionally,

> "*the focus of attention is restricted to the experimental subject, who in this case is the child. As a result, few investigators have examined, or even recognized, the possibility that the development of other persons besides children can be*

> *affected in important ways (...). Parents are, of course, most likely to be influenced ...*" (BRONFENBRENNER, 1978, p. 165).

At least, the effect of preschool intervention on parental child-rearing role and concern would merit to be considered. Perhaps also, one would have to obtain more direct information on the construction by the child of a role conducive to success, that is to go beyond cognitive measures.

May we generalize to preschool education the conclusions drawn from studies on lasting effects of early interventions directed toward low income children? Has early education the same effect on low-income children when middle-clas and upper-class children attend child care settings (as in the countries where all the children are engaged in a preschool system)?

This is not sure. According to the SCHWEINHART & WEIKART transactional hypotheses, long-term effects of child care on low-income children are based up on the break of the stratification process of the school by the enhancement of lower-class children's cognitive performance : those children who have get preschool education can demonstrate, at the entry of elementary school, a level of performance superior to this one of other low-income children. In other words, they perform like "*good*" middle-class children. Unfortunately, it can be suspected that the perception of low-income "*eductaed*" children are relative : they are perceived as good pupils because they perform better than other low-incomes and as well as middle-class ones. The generalization of preschool education in the States would probably enhance the cognitive level of the majority of the five-year old children. But, probably, middle-class children and upper-class ones would benefit more from preschool education than lower-class ones. Therefore, the egalitarian effect of preschool education would disappear. In countries like France and Belgium where preschool settings are attended by more than 94 % of under five, the rates of school failures is high and concern mainly low-income children.

Moreover, the larger cultural atmosphere of the War against Poverty contributed probably in the effect of the early interventions. LAZAR & DARLINGTON recognized this possibility. They wrote :

> "*We have no evidence about the influence of larger social and historical contexts (...). What differences did it make to enroll a child in intervention program at the weight of societal commitment ot social change?*" (1979, p. 20).

This statement also is congruent with the transactional-ecological perspective developped by BRONFENBRENNER (1978), SCHWEINHART & WEIKART (1980) and so on : the effect of an educational endeavor is related to the cultural an economical climate of the society or of the macro-system (BRONFENBRENNER, 1978).

2. SECOND WAVE : COMPARATIVE STUDIES

The problematic of lasting effects of early education has emerged in a specific cultural and historical contexte : the american War against Poverty. In countries where extra-home care services have becomed necessary by the pressure of socio-econmic evolution, the question raised by policy makers and educational planners is quite different. The issue is **how out-of-home have to be organized**. The second group of U.S. studies which are concerned by the effects of different preschool curricula on low-income children, can offer some elements of response.

The second wave of studies concerned the comparison of the various kinds of programs. As noticed by *GOFFIN*

> "Comparison of program models is almost entirely an early childhood phenomenon *"Follow through Programs are being incorporated by this statement because they were convinced and developed as extensions of early education programs"* (1989, p. 130).

2.1. CLASSIFICATORY MODELS OF PRESCHOOL CURRICULA.

Differential environments shoud have differential effects. This is the rationale of comparative studies. Indeed, examination of the goals and the guiding concepts of development which underlay preschool programs reveals a great diversity. Head Start program and traditional nursery classes usually emphasize socio-emotional growth, self-expression, inquisivitness by means of self-initiated manipulation of materials, sensorial stimulation, role taking plays and conversations about contents proposed by the children. Others, like the BEREITER ENGELMAN program, stress the training of linguistic and numerical skills by the use of verbal instruction, repetition and reinforcement. These programs have clearly defined objectives and programmed sequences to move children toward these objectives. The MONTESSORI programs emphasize independence, self-discipline and cognitive development, - mainly viewed as the ability to classify - through direct sensory experience. At least, some programs, inspired by DEWEY and PIAGET theories,

> *"tend to focus upon underlying processes of thinking or cognition"* (1972, p. 34)

and emphasize that

> *"learning occurs through the child's active and largely intrinsically motivated involvement in an environment structured by the teacher"* (1978, p. 2),

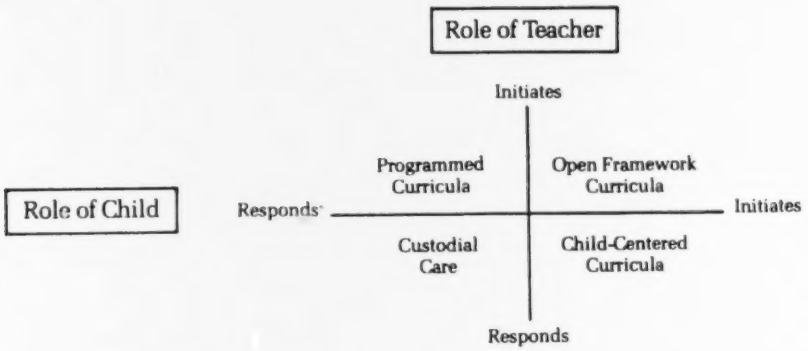
the training of specific skills in deemphasized.

Several writers have attempted to devise taxonomies which account for the essential characteristics of the various preschool programs. BISSEL (1971) suggested to classify programs in three categories : preacademic (programs fostering the acquisition of preacademic skills), cognitive-discovery (programs promoting growth of basic cognitive processes by active exploration of the environment) and discovery (programs fostering the development of the

"whole" child). WEIKART (1972) classified programs according to the dominant roles played by teachers and children on a two dimensional basis (see figure 4).

Figure 4

Preschool Curriculum Models



KOHLBERG and MAYER (1972) identified three approaches according to the underlying educational ideology. Cultural-transmission ideology and associationistic learning theory give rise to programmed or pre-academic curricula. Romantic ideology and maturationist theory underlie child-centered curricula whereas progressivist ideology and cognitive development theory is the relevant foundation for cognitive-discovery or open framework curricula. In many ways, the classifications of BISSEL, WEIKART, KOHLBERG and MAYER are comparable. Although these taxonomies conceal the real diversity of programs, they indicate the major themes of ideological discussions or disputes about preschool programs. They also reveal that if studies on lasting impact of early education are relted in much a manner to the heredity-environment issue, comparative studies are related to the basic developmental concept or guiding educative principles issue. If the first group of studies reviewed here were concerned by the question :

> *"Does preschool education make a difference ?"*,

the comparative studies attempted to answer to the question :

> *"Does it matter which curriculum is employed ?"*

or, in other words, to the question :

> *"What king of preschool curriculum was (is) most likely to be effective ?"* (1975, p. 1).

An examination of the literature essentially reveals that few comparative studies have been done. Moreover, this type of study is confronted with a number of methodological problems which are more or less resolved depending on the case.

2.2. EARLY STUDIES.

For example, DI LORENZO, SALTER and BRADY (1972) compare the effects of eight different programs among which are found adaptations of the Bereiter-Engleman program, a Montessori program, a highly structured cognitive program and "traditional" programs. The results reveal that the program inspired by Bereiter and Engelman produced the most significant gains. But the use of the Stanford-Binet test as the principal criterion measure perhaps favored this type of program and disadvantaged others in so far as some of their most important objectives are not evaluated. Moreover, it is unfair to exclusively attribute the postive effects to the intrinsic characteristics of the program, because the programs being considered vary as well in the pupil/teacher ratio, the training of teachers, the initial characteristics of the children, the length of the intervention and the extent of administrative supervision.

The same criticism can be addressed to ERIKSON (1971) who compares the performance of children participating in a program inspired by Bereiter-Engelman with that of children participating in a "traditional" program and that of children in a control group who do not attend any program. Here, the two "experimental" groups (the Bereiter-Engleman and the traditional program) do not differ from each other but both show considerable advantages over the control group.

2.3. THE KARNES' STUDY.

KARNES (1969) and her colleagues carried out a study to evaluate the differential effects of five programs selected to represent levels of structure along a continuum from the traditional nursery to the highly structured preschool. The degree of specificity and intensity of the teacher-child interaction was considered to be the critial dimension of structure. Two programs (Traditional and Community-Integrated) represented the less structured end of the continuum. A Montessori represented an intermediate point of structure. The Ameliorative program (a psycholinguistic model that provided opportunities for verbalization in conjuction with manipulation of materials and the Direct Verbal program (inspired from the Bereiter-Engelman one) fell at the high end of the structure continuum. None program had a home visit component.

At the end of the preschool year, the two highly structured programs (Ameliorative and Direct Verbal) showed the most substantial mean gain (13 points) on the Stanford-Binet test. The other three programs demonstrated lesser important mean gains (8 points for the traditional; 5 for the others). The assumption that the level of structure relteds to the progress made by the disadvantaged child was partially invalidated by the relative low gains showed by the Montessori program. According to the authors, this is imputable to

> *"the structured emphasis on motor-sensory development without similar concern for verbal development"* (KARNES, 1969, p. 13).

Other tests (Frostig, Visual Decoding, Visual Motor Sequencing, Motor

Encoding, Auditory-Vocal Automatic Subtest) revealed the "superiority" of the Ameliorative program on the Direct Verbal one and the other three. These findings were interpreted by th author as an endorsemenf of

> *"the importance of providing a setting in which the child is required to make appropriate and increasingly complex verbalization"* (1969, p. 13)

in conjuction with productive, manipulative experiences.

Although the short-range findings supported apparently the verbal structured programs, some differences of operation between the programs need to be printed out. The quality and intensity of training varied from program to program. For traditional teachers, an in-service training program was conducted before the beginning of the school year. For Ameliorative and Direct Verbal teachers, weekly in-service training or supervision was organized throughout the program. Moreover, the child-teacher ratios in the Montessori and community were less favorable than in the three other programs. No process data were available; it was impossible to verify the implementation.

The five programs were followed up into the end of kindergarten. At this level, the investigator noticed the superiority of Direct Verbal group to other groups on the Stanford Binet Test and the superiority with the Ameliorative group on various readiness subtest of the Metropolitan test. But it is difficult to ascribe these results to th type of educational program : the special programs contnued during kindergarten for the Direct verbal and Ameliorative groups while all others moved into regular kindergarten.

Of the initial five models, three (the Ameliorative, the Direct Verbal and the Traditional) were followed up into the first grade. KARNES (1974) reported that

> *"no intervention program was entirely successful in providing the impetus necessary to sustain at the end of the first grade the gains in intellectual functioning and language development made during the preschool years"* (p. 22).

The follow-up into the third grades revealed again no significant differences between the three programs in measured Stanford-Binet scores.

2.4. THE HEAD START PLANNED VARIATION.

The Head Start Planned Variation (*RIVLIN & TIMPANE*, 1985) is certainly the most important endeavor in this way. It was conducted at the request of the U.S. Department of Health, Education and Welfare. The objective of this study was to compare the cognitive, scholastic and motivational

development of children participating in twelve different programs[8]. It is also concerned with comparing the impact of these programs to that of the conventional **Head Start** experience.

The analysis of the results by *SMITH* (1975) revealed that no program established itself as either superior or inferior to the others. Indeed, some programs generate greater gains for certain specific types of performance, but no program had a general impact which would allow it to be designated as superior to the others. In addition, the comparison of the conventional Head Start experience to the HSPV programs did not bring to light any significant differences. Contrary to other studies (*SEARS and DOWLEY*, 1963), structured programs emphasizing the teaching of academic skills did not produce greater general advantages over other programs but favored more specifically the learning of letters, numbers and geometric forms. The **High Scope Model** particularly influences scores obtained on the Stanford-Binet.

Nevertheless, this important study did not close the debate. It would be unfair to conclude from the **Head Start Planned Variation Study** that all types of preschool education are equivalent because a certain number of methodological criticisms can be addressed to it.

1. Although the **HSPV Study** included a certain variety of tests and therefore avoided favoring certain programs in the choice of criterion measures, it was unfortunate that the social and affective domains were neglected. In reality, the limitation to the cognitive domain was due to the absence of valid tests for investigating the other domains.

2. According to *SMITH* (1975), the use of global measure such as the Preschool Inventory or the Stanford-Binet, undoubtedly concealed certain effects. This author advanced the hypothesis that the differential effects of programs would appear more clearly if more specific tests were used. Ideally, evaluation should be directly oriented toward the program objectives. But the construction of evaluation instruments adapted to the objectives pursued by the different programs was all the more difficult since some programs had vague objectives and no specific criteria for success. Finally, the promoters of the different programs agreed to use a battery of standardized tests as the criterion measure. As *RIVLIN & TIMPANE* pointed out

   > *"these, however, are ill adapted to distinguishing among curricula with different emphases. Indeed, standardized tests are explicitly designed to give comparable measures of children's performance irrespective of what curriculum they have been exposed to, and hence are singularly ill suited for use as discrimators, among curricula". (1987, p. 10)*

3. Certain programs were implemented before they had been totally

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8 The programs included are the following : Responsive Educational Program, Tucson Early Education Model, Bank Street College of Education Approach, Engelman-Becker Model, Behavior Analysis Approach, High Scope Model, Florida Parent Education Model, EDC Open Education Program, Individualized Early Learning Program, Responsive Environments Corp., Early Childhood Model, Enabler Model, Head Start conventional Experience.
They were grouped into three categories : preacademic models, cognitive discovery models, discovery models.

operationalised.

4. In addition, it seems that the implementation of programs varied considerably from one site to another even if they came from the same model and had the same staff, such that it is not unreasonable to suppose that the gains obtained in the sites most *"faithful"* to the intentions of the model were neutralized by the results from other sites.

The implementation of each program was evaluated by the authors of the program using a nine point rating scale. From the analysis of *LUKAS*, it appears that :

- *"all the models were considered by their sponsors to be moderately well implemented;*
- *the level of implementation varied substantially among sites implementing the same model;*
- *differences among models are not significant but the differences among sites within the same model are "* (1975, p.115).

Examination of the data gathered directly in the classroom revealed that :

- *"Only four models can easily be distinguished;*
- *the other models may in fact have been similar in practice"* (1975, p. 116).

Although the programs differentiated themselves in some extend by the educational aims they advocated, it is possible that they did not differ as far as what is being taught and the manner in which the teaching was done.

2.5. THE IPSYLANTI PRESCHOOL CURRICULUM DEMONSTRATION PROJECT (I.P.C.D.)

WEICKART *et al.* (1978) conducted a comparative study of three preschool programs : a Bereiter-Engelman program (Language training curriculum), an open framework program inspired by Piagetian theory (the Cognitive curriculum) and a traditional program (the Unit-Based Curriculum) . Fourty-one three-year-old children were drawn from the same population; they were economically disadvantaged and characterized by I.Q.'s scores between 50 and 85. Children attended preschool for two years and received regular home visits. In this study, it is noteworthy that non curriculum variables were carefully controlled so that differences in outcomes would reflect differences in programmatic characteristics. Moreover, a careful observation of the classroom processes indicated that three distinct programs were implemented and that each program represented actually the intented curriculum model.

At the end of the first year of preschool, the average gain was 23 points. An unexpected finding was that *"children in all three programs were quite similar to each other on cognitive-linguistic measures"* (*WEIKART et al.*, p. 126). By the end of the second year of preschool, the gains had slightly dropped but children

of the preacademic program did not drop as much as children of the other two programs and, thus, had significantly higher scores.

The follow up data did not reveal any significant difference either :

- the I.Q.' gains of the children of the three programs were maintained at the end of the fourth grade.

- the rates of grade retention and special education placement were equally reduced for children of the three programs in regard to children who had not participated in any preschool.

On the basis of these results and in regards to similar findings in the other comparative studies, WEIKART *et al.*, concluded that the operational conditions of experimental programs are more crucial than the characteristics of the program.

> *"The principal issue in early childhood education is not which curriculum to use but how to manage any curriculum to achieve positive results"* (WEIKART, 1978, p. 136).

According to WEIKART et al., it is plausible to see the primary role of the curriculum as mobilizing and focusing the energy of the teacher, providing a rationale for selecting activities for the children as well as a rational base for the supervision of teachers. For the interaction between teacher and parents, a curriculum seems also important :

> *"Parents are more involved in educational activities with their children when the program goals are clearly articulated"* (WEIKART et al., 1978, p. 135).

Such comments are in agreement with the systemic or ecological approach which *BALL* (1978) advocates for :

> *"The systems approach reminds us that we have to view a classroom (or a preschool program) as one interacting element in a larger context"* (p. 86)

2.6. THE LONGITUDINAL STUDY OF L.B. MILLER

MILLER and her colleagues (*MILLER & DYER*, 1963, 1970, 1971; *MILLER & BIZZELL*, 1983) conducted a longitudinal study which avoids most of the classical shortcomings of comparative studies. The results are provocative.

Four programs were compared : a Bereiter-Engelman (BE), a Darcee program (D), a Montessori (M) and a Traditional Head Start (T). The children were randomly assigned to treatment groups. A control group of children not attending any preschool program was also recruited and included in the follow up studies. At the end of the prekindergarten, 214 experimental children were in the sample. Extensive process data were reported and indicated that the programs were implemented in a congruent way with the intented lines specified by consultants in the particular program. The greatest variations observed among the programs were related to the children's activities; no differences among programs in the amount of time the teachers were out of contact with the children were found. Thus, the authors claimed that difference in the children scores on

the dependant measures (if any) may be attributed to programs' characteristics.

The Preschool Inventory (PSI) (CALDWELL,1968) was administered 8 weeks after the children started preschool (PPK) and at the end of the preschool year (EPK) and at the end of kindergarten (K). California Achievement Test scores were obtained from the school systems at the end of 1st and 2nd grades. Stanford Achievement Test scores were available for children in 4th through 8th grades, and scores from the Comprehensive Test of Basic Skills were available for children in 9th and 10th grades. The STEP-Locator, a brief test of language and math skills, was administered to the 9th and 10th graders by the research staff. Intelligence was measured with the Stanford-Binet (TERMAN & MERRILL, 1960) at the beginning of the preschool experience and at the end of preschool, 1st, 2nd, and 8th grades. Beginning in spring,1977, the Wechsler Intelligence Scale and the Stanford-Binet Intelligence Test were administered in alternate years by the research staff.

The results indicate that the academic and I.Q trends established by the end of kindergarten persisted into the 9th and 10th grade years. They also indicate a **persistent interaction between the effect of the programs and the sex**.

The Montessori program : I.Q scores for the Montessori girls increased at the end of preschool and then dropped off radically. I.Q scores for the Montessori boys were not lower in I.Q at 10th grade that the end of preschool (see figure 5.1.1. on next page). Moreover, at the end of the 10th grade, the Montessori boys were operating above rational norms at the California Achievement test (see figure 5.1.2. on next page) I.Q. The academic scores of the Montessori girls are lower than these ones of the Montessori boys.

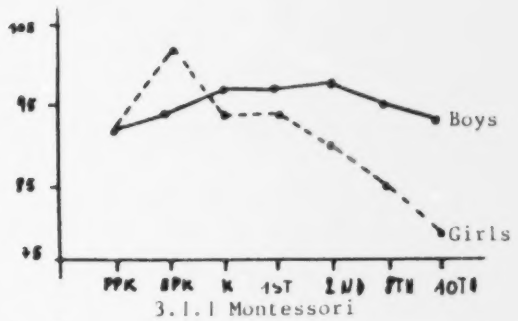
The Susan Gray's DARCEE program : The I.Q scores of the DARCEE boys are 15.3 points below the 10th grade Montessori boys. The 10th grade DARCEE girls score higher than the DARCEE boys (approximatively 5 points). They also score higher than the Montessori girls (approximatively 10 points).Girls and boys also score differently at the Achievement test. DARCEE girls score higher than the Darcee boys and Montessori girls, but lower than Montessori boys.

The Bereiter Engelman program : B.E. boys and girls reach quite similar scores for both test (I.Q and achievement) during the whole duration of the study. At 10th grade, the BE boys score higher than do DARCEE, traditional and control boys at the achievement test, but lower that the Montessori boys. The BE girls score lower than the DARCEE and control girls, but higher than the Montessori and traditional girls.

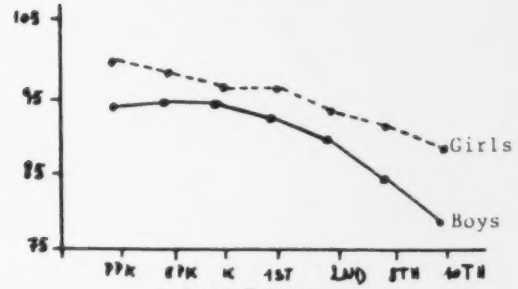
Figure 5 (diagrams)

Figure 3

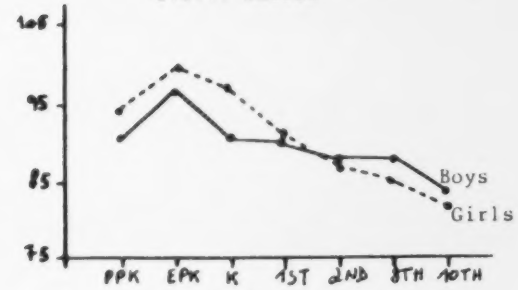
Stanford IQ tests results



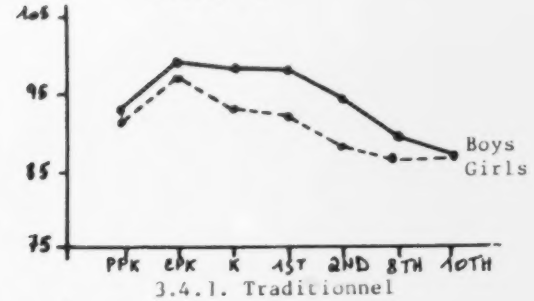
3.1.1 Montessori



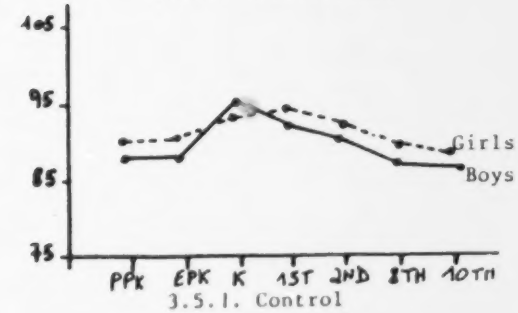
3.2.1. Darcee



3.3.1. BE

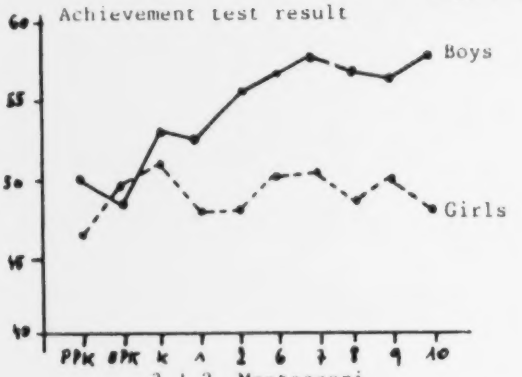


3.4.1. Traditionnel

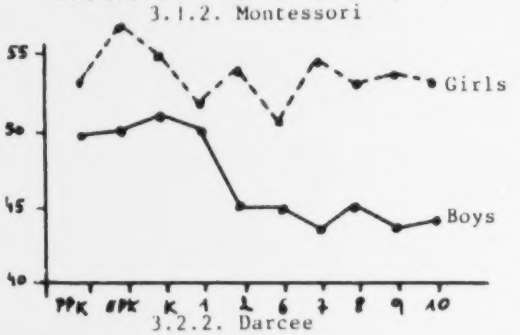


3.5.1. Control

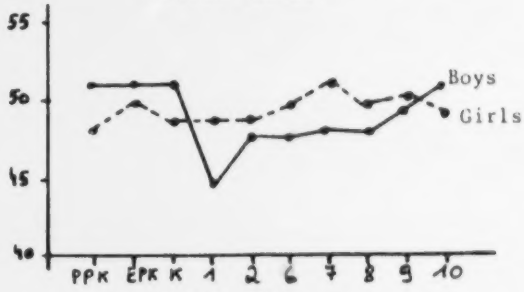
Achievement test result



3.1.2. Montessori



3.2.2. Darcee



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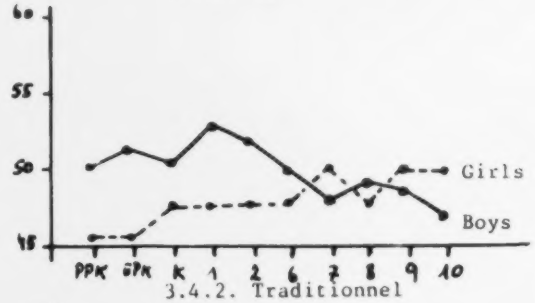
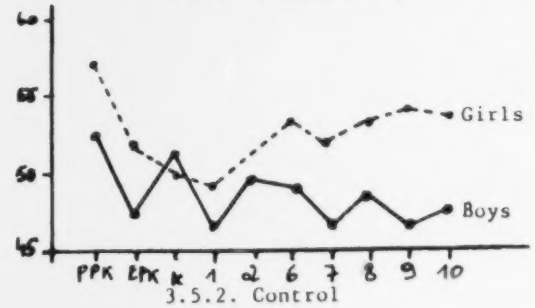


3.4.2. Traditionnel



3.5.2. Control

The Traditional Head Start program : At 10th grade, differences between boys and girls are weak either at the I.Q test or the achievement test. At the 10th grade, the traditional boys score lower than the Montessori ones at the I.Q test, but higher than the Bereiter; DARCEE ones; they do as well as the control boys. At the same grade, traditional girls score as well as the DARCEE and the control girl, but higher than the Bereiter and Montessori ones.

Concerning achievement at the 10th grade, the traditional boys do as well as the contro ones, better than the DARCEE ones and worse than the Montessori and the BE ones. Traditional girls do as well as Montessori and Be ones but worse than the control and DARCEE ones.

Considering the 10th grade, the results can be summarized by ranking the program according to the boys and girls scores on both list (see table 4).

I.Q.		ACHIEVEMENT	
Boys	Girls	Boys	Girls
Montessori	Control	Montessori	Control
Control	DARCEE	BE	DARCEE
Traditional	Traditional	Control	Traditional
BE	BE	Traditional	BE
DARCEE	Montessori	DARCEE	Montessori

Table 4 : Ranking of the porgrams examined by MILLER according to their effects on I.Q. and achievement scores of boys and girls.

This presentation makes clear that there is a sex-program interaction. Montessori program is the best for the boys and the worst for the girls. The ranking of the programs for the boys at the Achievement test is approximatively the reverse than this one for the girls. Moreover, the girls who did not get any preschool education do at least as well as the girls who did get one.Considering the original random assignment and considering that attrition has not been differential, these findings can not be attributed to the chance factor.

3. THIRD WAVE OF STUDIES : QUALITY OF LIFE IN THE PRESCHOOL SETTINGS

As *GOFFIN* (1989, p. 137-138) states it,

> *"a major weakness of curriculum comparison studies (...) is that they confound content, activities, and materials with teacher behaviors* (MILLER *et al.*, 1985; POWELL, 1986). *Consequently, while these studies provide understandings about program consequences, they do not explain how preschool programs achieve their effects. They do not specifically inform early educators how they might become more effective components of the developmental equation (learning + maturation = development). This is exacerbated by the fact that most of the comparative research on program models involves children from low-income black families, severely limiting its generalizability to other populations of young children"* (POWELL, 1986; STALLINGS and STIPEK, 1986)

Longitudinal studies of the first wave have similar limitations. They demonstrate that preschool education can have a beneficial effect on the development of children from low-income black families, but they do not inform early educators **how they can become more effective in the stimulation of child development.**

In the seventies, the feeling of failure concerning comparative studies led several authors to suggest another way of investigations. As *WEIKART* wrote :

> *"It might be more fruitful for researchers to spend more time studying the teaching process and the learning experiences of the child through classroom observation rather than through delayed results on achievement tests"* (cited by *BELLER*, 1973, p. 575).

This direction of research was also supported by *BRUNER* . According to this author,

> *"rather little is known about what really happens in the preschools that children attend - whatever type they profess to be"* (*BRUNER*, 1980, p. 55).

3.1. THE OXFORD PRESCHOOL RESEARCH PROJECT (O.P.R.P.)

The OXFORD PRESCHOOL RESEARCH PROJECT illustrates clearly the potential of this method of investigation (*BRUNER* , 1980). One hundred and twenty young children (60 of three-and-a-half to four-and-a-half and 60 for four-and-a-half to five-and-a-half) were observed in playgroups, nursery schools and nursery classes (number of settings = 19). The child's activities were noted during each thirty-second period, for 20 minutes; each child was observed during two periods of 20 minutes. Each thirty-second period of the child's activity was analyzed according to 12 different aspects :

- immediate task or activity
- larger episode of which immediate task in part
- cognitive complexity of task
- cognitive complexity of larger episode
- how many others present
- is child interacting with others or parallel to them
- status of others
- if adult is present, is her role active or passive
- is another activity embedded in or parallel to the main task
- how many utterances spoken
- are utterances connected or "one-off"
- who initiates utterances.

The study provided quantities of meaningful and practical information.

Thus it was demonstrated that the more complex activities of the children almost always occurred with materials that have clear goals, means for achieving them and "real-world feedback" (the child may discern his progress by himself). Pretend play and manipulation of sand, water or dough also led, but to a lesser extent, to high level elaboration of activities. Unstructured activity situation led to low level elaboration play. Moreover, children are much more likely to involve themselves in complex activities when they are playing with another child in a pair or when playing with an adult but these combinations were rather frequent.

From the child's point of view, talks or connected conversations were rare in the preschools only 20 % of time intervals observed; 2/3 of these 20 % occurred among children, although adults may converse almost all the time with children. Longer conversations occurred mainly in a small quiet locale as if conversation requires intimacy. Situations where the child is less challenged for elaborated activities fostered connected talks. The role of adult was preponderant, but frequently managerial tasks interrupted dialogue.

The observational data permit to differentiate the three kinds of institutions, but differences reflect as much material constraints as educational ideology. For example, playgroups are characterized by more adult-direct group activity but this feature seems to be influenced by the restricted space and the lack of outdoor facilities. Nursery classes, always attached to primary schools, tend to place more emphasis on verbal activity and on school readiness tasks. Nursery schools where emphasis is placed upon free expression give rise to more *"solo"* activities and less elaboration in play.

But more interesting is the analysis of the influence of some settings variables, regardless of the label of the settings. For example, the OPRP demonstrates that *"children in the more structured settings generate more elaborated play than children in the less structured ones"* (*BRUNER* , 1980, p. 21). In other words, it appears that where there are some prescribed activities, there is a tendency for the children to have more complex activities as if children continue to perform in the same way as in the adult directed situation.

Adult/child ratio and group size also are consequential variables. The larger the adult-child ratio, the higher proportion of time is spent in activities which promote elaborated play and the more connected discourse there is.

Small group size also seems to foster elaboration in play and pretend play.

3.2. THE NATIONAL DAY CARE STUDY.

Similar research was conducted in the U.S. by *A.B.T ASSOCIATES*. "The major objectives of the **National Day Care Study** were to determine :

- *"the impact on the quality of care of different caregiver/child ratios, group size, qualifications of classroom staff, and other regulatable center characteristics;*

- *the impact of these factors on the cost of care"* (RUOPP *et al.*, 1979a, p. 10).

Methods used in measuring quality were observation of caregivers and children in the setting and the administration of standardized tests to children. Systematic observations were used to answer such questions about the child's daily experience as:

> *"How much of their time did the staff spend in close interaction with children ? In maintaining order ? In detached observation or administrative tasks ? How much of a child's time was spent in a group activity ? In independent reflective play ? Wandering aimlessly ? How much verbal initiative did the child show ? ..."* (RUOPP *et al.*, 1979a, p. 13).

A consistent pattern of findings emerged from this study. Smaller group sizes are associated with higher gains on the achievement test. The effect of group size seems to be mediated by differences in the behavior of caregivers and children. In smaller groups, there is a tendency of caregivers to be more engaged in rich social interaction with children (questioning, responding, praising and comforting) while, in larger groups, there is a converse tendency of caregivers to spend more time in observing children and in interacting with other adults.

> *"Children in smaller groups showed higher frequencies of such behavior as considering/contemplating, contributing ideas, giving opinions, persisting at tasks and cooperating than did children in large groups. In general, smaller groups were characterized by high levels of interest and participation on the part of children. In large groups, children showed higher frequencies of wandering, non-involvement apathy and withdrawal"* (ABT Associates, 1979, pp. 36-37).

Moreover, the results revealed that caregivers with education relevant to young children delivers better care with somewhat superior effects on test performance of the children.

3.3. THE NATIONAL ASSOCIATION FOR EDUCATION OF YOUNG CHILDREN'S (N.A.E.Y.C.) MONOGRAPHS.

The *"Oxford Preschool Research Project"* and the U.S. *"National Day Care Study"* attest to the value and the fruitfulness of extensive observation of adults and children in the center setting. A critical analysis of the monograph "Quality in child care : *what does research tell us* ?" consecrated by NAEYC (1987) on the quality of child care, also lead to argue in favor of extensive observation of adults and children in the settings.

The title of the last chapter of this monograph is highly significant : **In search of consistencies in child care research**. In this chapter, *CLARKE-STEWART* tries to cope with the inconsistencies in results of the five studies reported in the book.

3.3.1. WHAT ARE THE INCONSISTENCES ?

a. Three of the five studies used an overall index of quality in child care settings : the Harms and Clifford Early Childhood Environment Rating Scale (ECERS).

- in the Bermuda Study, *PHILLIPS, SCARR, & M.c. CARTNEY* found the ECERS to be positively related to the social competence, intelligence, and language of children in centers

- in the Pennsylvania Study, *KONTOS & FIENE* found the scale to be negatively related to the social competence and language of children in centers

- in the Victoria Day Care Research Project, *GOELMAN & PENCE* found a home adapted version of the ECERS (the DCHERS) to be positively related to the intelligence and language of children in family day care homes.

- in the same Victoria Study, children between 2 and 5 years old were also observed in child care centers. For these children, the ECERS was not related to the intelligence and language measures.

These findings are summarized in the table 5.

		Social Competence	Intelligence	Language
Bermuda Study		+	+	+
Pennsylvania Study		-		-
Victoria	Homes		+	+
D.C.R.	Centers		No	No

Table 5 : Correlation between ECERS and three developmental measures

b) There is a second set of inconsistencies. It concerns what *CLARKE-STEWART* calls the regulable variables, i.e.

- the adult-child ratio
- the group size
- the caregiver experience
- the caregiver salability
- the caregiver education.

The inconsistencies are summarized in table 6.

	ADULT-CHILD RATIO	CAREGIVER EXPERIENCE	CAREGIVER STABILITY	CAREGIVER EDUCATION AND TRAINING	GROUP SIZE
BERMUDA STUDY	Positive relation with social competence	Positive relation with social adjustment and negative with sociability	Positive relation with social adjustment. Negative with intellectual development		
LOS ANGELES STUDY	Positive relation with social competence				
CHICAGO STUDY	Negative relation with social competence	Positive relation with cognitive competence and negatively with sociability	Positive relation with social and intellectual development	Positive relation with language and intellectual development for child care centers Negative relation with social competence	Positive relation with social competence
PENNSYLVANIA STUDY		Positive relation with language and sociability	Positive relation with social and intellectual development	(N.S.)	Positive but small relation with language and intellectual development
VICTORIA STUDY				Positive relation with language and intellectual development for family day care home only	

Table 6 : Summary of the findings of the five NAEYC monographs.

3.3.2. WHY THE INCONSISTENCES ?

Concerning the first set of inconsistencies, *CLARKE-STEWART* gives a relevant explanation. She first notices that *KONTOS & FIENE* found no intercorrelation between different global indexes of quality and then comments as follows :

> *"But is this surprising ? Calling something quality does not make equivalent to something else that is also called quality, if one is the quality of educational materials, and the other refers for example to physical characteristics of the program. And having high quality of one does not necessarily mean that there will be high quality of the other in any particular center.*
>
> *Having both developmentally appropriate instruction and excellent physical space may reflect high quality,but they do not necessarily co-occur : ..."* (CLARKE-STEWART, 1987, p. 113).

According to *CLARKE-STEWART*, the second set of inconsistencies can be explained by the differences in the range of the independent variables assessed. So, concerning the caregiver experience variable *CLARKE-STEWART* notices that the Pennsylvania Study reports a range of 2 to 14 years of experience while the *PHILLIPS et al.* reports a range of 11 to 25 years of experience for the caregivers observed in the Bermuda Study. Concerning the caregiver education and training variable, *CLARKE-STEWART* gives a similar explanation for the surprising observation that there is a positive relation of this variable with some measures of child development for family day care only in the Victoria Study, although both studies have both kinds of settings in their samples. According to this author,

> *"this is probably the result of the relative variation in our samples : GOELMAN and PENCE had more variation in their family day care home sample, and we (for the Chicago Study) had more variation in our center sample"* (*CLARKE-STEWART*, 1987, p. 115).

4. THE FUTURE OF CHILD CARE RESEARCH : A NECESSARY MOVE FROM THE PROCESS-PRODUCT PARADIGM TO AN ECOLOGICAL / MEDIATING-PROCESS PARADIGM.

4.1. THE SEARCH FOR PROCESS-PRODUCT RELATIONS

CLARKE-STEWART offers plausible explanations of the inconsistencies observed in the N.A.E.YC. monographs. However, these inconsistencies may be good opportunities for questionning ourselves on the reasons why we are looking for direct link between these variables : setting structures variables, for one hand; child development, on the other hand. According to the epistemogists of science like *KUHN (1970) or CAMPBELL (1978)*, the way we analyze the data, reflects the underlying research paradigm[9] we - explicitly or implicitly - agree with. In this particular case, the search for positive correlations between group size - for example - and some child development assessment measures reflects **an INPUT-OUPUT paradigm** or, according to the traditional formulation, **a PROCESS-PRODUCT paradigm** [10].

In the last two decades, educational researchers have concentrated their endeavors into the search of **direct links** between structural features (adult-child ratio, group size, space per child, equipment and so on) or teacher classroom behavior and student achievement or children development.

But why do we expect relations between some structural features as these ones called regulable variables (or those measured by ECERS) and children's achievement or development ?

PHILLIPS explains the foundation of this hypothesis in the first chapter of the NAEYC monograph.

> *"Adult-child ratio is considered an important quality indicator or the basis of assumptions that adult caregivers mediate children's contact with the social and physical world (...) the number of children with whom each caregiver can engage in a stimulating and sensitive fashion is obviously limited. With too many children to care for, the caregiver's interactions with each child are likely*

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9 What is a paradigm ? *KUHN* (1970) defines a paradigm an an implicit framework

> "that defines legitimate problems, methods and solutions for a research community. It is, in other words, a shared perception of adequacy, part of the taken-for-granted reality of research practice, which researches use tacitly to make judgements about works in their domain" (Quoted by DOYLE, 1978, p. 164).

10 The research for positive correlation between a global index of quality and child development corresponds to a similar paradigm. Moreover, this research practice is a confusing one. Since the imput measures consist of a mixture of aspects. The use of rating scale is a attempt to avoid extensive observation in the settings. The review of the NAEYC monograph indicates that this attempt is irrelevant.

to become brief and cursory" (PHILLIPS, 1987, p. 5).

This is an expression of a different research paradigm that *DOYLE* (1978) called **the mediating process paradigm.**

Concerning adult-child ratio, *PHILLIPS* does not assume a direct link between this structural dimension of the child care settings and the development of the children. She supposes that an intermediate variable has to be considered. This hypothesis can be schematized in the general following form :

Settings structural dimensions	--->	Caregiver's behavior	--->	Children development

Let's note that with this diagram as hypothesis, there is no more reasons to search for direct links between structural dimensions and child development, but that we have to look for two kinds of relations which can be combined in a theoretical model.

In this perspective, it is interesting to notice that, when correlations between some structural dimensions and adult or child behavior in the setting are reported, consistencies between research findings appear (see *PHILLIPS*, 1987, pp. 5-9). Similarly, *CLARKE-STEWART* finds consistent correlations between children's interactions with caregivers observed in the settings and child development measures. Unfortunately, she remarks that

> *"although children's interactions with caregivers were observed in four of the five studies, correlations with child development were reported for two only (Bermuda and Chicago)"* (CLARKE-STEWART, 1987, p. 110).

This observation confirms our analysis : **research concerning child care quality is mainly influenced by an implicit input-output paradigm.** It is still too rare in the field to look for verification of mediating hypotheses.

In the recent Association for Supervision and Curriculum Development (ASCD) publication ***International Comparisons and Educational Reform***, *ANDERSON & POSTLETHWAITE* examine the findings of the I.E.A. Classrooms Environment Study. They notice the following :

> *"The Classroom Environment Study produced some evidence that differences in teacher behavior are somewhat related to differences in student behavior, particularly in the extent to which students spend their classrooms time on-task. Data on student behavior, like the data on teacher behavior, were collected during each lesson"* (1989, p. 81).

Otherwise, they notice that students' perception of what transpires in the classroom are strongly correlated with their achievement.

ANDERSON & POSTLETHWAITE draw two conclusions from these findings; the first one is of crucial importance in regard to our own concern :

> *"First, and one that may not be greeted with cheers in light of the current American educational zeitgeist, is that educators should stop looking for direct links between variation in teacher behavior and variation in student achievement. Far too many factors mitigate against such a direct relationship. At the same time, however, evidence supporting the relationship between teacher behavior and student behavior is more substantial and is consistent with the earlier finding that teachers tend to judge their effectiveness more on the basis of student behavior than student achievement."* (JACKSON, 1976)" (id., p. 82)

The limitations of classical standardized tests have also to be considered in the discussion of this issue. The review of the literature concerning the evaluation of preschool programs in the U.S. is illustrative of this second problem. Most of the studies have used the Stanford-Binet test as the ultimate criterion of effectiveness. In some studies, achievement tests are also included in the experimental design, but socio-affective outcomes are usually disregarded because of the difficulty of measuring them in a reliable way.

The Head Start Planned Variation (HSPV) Study offers a good example of the problems that curriculum evaluators have to cope with. As we noted it here above, the experience of this study leads us to conclude that standardized tests are not appropriate tools in order to discriminate the differential effects of various preschool environments.

May be, quality of life in the setting has - in some circumstances - to be considered as an outcome in itself. As early as 1982, *TRAVERS & LIGHT* argued in favor of this idea :

> *"In view of the fact that some programs, notably day care and preschool education, consume a significant portion of the child's waking life; a case can be made for considering the quality of life to be an outcome in itself..."* (1982, p. 32).

> *"Quality of life and development are intertwined, patterns of behavior that indicate immediate engagement, stimulation, self-confidence, etc. on the part of the child are at least good bets to relate to long-term socioemotional growth "* (1982, p. 32).

The Oxford Preschool Research Project illustrates clearly the potential interest of **process-process findings.** For example, BRUNER and his colleagues found that *"children in the more structured settings generate more elaborated play than children in the less structured ones"* (1980, p. 21). In other words, it appears that where there are some prescribed activities, there is a tendency for children to have more complex play activities, as if the children are continuing to perform in the same way as they did in the adult-directed situation.

Similarly, the work conducted in Belgium by *DELHAXHE* (1991) as a pilot study of the next IEA Quality of Life project offers interestings hints to caregivers for the organization of stimulating child care setting. Twenty-four *écoles maternelles* attended by five years old were observed during 6 full days. All the activities organized, suggested or permitted by the caregivers were notes; the time allocated to each of them was recorded. In each care setting, four children were the focus of intensive fine-grained period of observations. At first, she observed that, in general, children are engaged in educationally related activities during only 54 % of the time the spend in the

care setting. Moreover, the intensive observations indicates that, during these educationally related activities, they have to be passive most of the time: they listen to the adult during 18 % of the observational periods, they are fully inactive during other 18 %, they wait for parents, the caregiver and so forth during 5 % of the time. They only are involved in conversation during 13 % of the time, they draw during 8 % and manipulate actively objects during 9 %of the time. Parallellly, it has to be noticed that in most of the settings, the caregiver organized collective activities as in elementary classes. In some settings, caregivers sometimes adopte an educational organization called *en ateliers* which approximatively corresponds the pedagogy of the project recommended by *KATZ* (1989). In these settings and, especially when the *ateliers* are organized, the children are frequently engaged in verbal interactions oriented to the task (15 %), they are rarely listening to the adult (5 %) or waitng for her (1, 38 % versus 6 % in general) and, finally, the are actively involved in a task during more than 44 % of the time.

This kind of findings, which do not incorporate developmental measures, would also seem to be useful to caregivers, because they generate propositions in a form compatible with the decision-making demands of classroom teaching. *DOYLE* demonstrated a finding of . *GLASER* (1971), who, noting that the amount of student attention was significantly related to learning outcomes, suggested that clarity was a signal to students that the teacher has a precise idea of what is important and what merits students' attention. *DOYLE* (1978) comments as follows.

> *"Using results from the lecturing studies reviewed above, a teacher would be guided to plan a presentation containing clarity, gestures and movements, and explanatory links. In the event that the presentation did not accomplish its objective, the process-product formulations would offer no further guidance. Just knowing the relation of a technique to terminal performance fails to supply sufficient information about immediate contingencies in the classroom. A mediating process interpretation, however, directs a teacher to experiments with other procedures which are potentially related to activating student attention. The response focus of the mediating process paradigm, in other words, enables a teacher to practice what CRONBACH(1975) has called "short-run empiricism", in which "one monitors responses to the treatment and adjusts it,instead of prescribing a fixed treatment on the basis of a generalization from prior experience with other persons or in other locales" (p. 126). In this view of the practitioner's task, information concerning effects assumes greater importance that information concerning effectiveness"* (p. 174).

Let's notice that we do not argue in favor of the suppression of any standardized test as indicator of the quality of child care. Rather, we are in favor of the consideration of two sets of indicators. In the perspective presented here, some Q.O.L indicators would be **within-setting**, others would be **out-of-the-setting's** ones; some correspond to process variables, others correspond to developmental measures. Some overlap may exist between within-setting indicators and indicators corresponding to developmental measures.

4.2. HOME AND OUT-OF-HOME CARE SETTING : THE END OF THE COMPETITION

Family and school frequently have been conceived as competitive educational spheres. So, the *COLEMAN*'s report (1966) usually is discussed as **the** study which has demonstrate that the familial background has a greater influence than the scool on students' achievement. Similarly, *JENCKS & al.* (1972) agree that schooling accounts for but a small percentage of variation in student achievement. In reaction to this current of ideas, *GOOD, BIDDLE & BROPHY* (1975) write a book to argue that ***"Teachers make a difference"***. *WILEY* (1973) explored a number of specific deficiencies in *COLEMAN*'s original analysis and in the reanalysis of the data carried out by *JENCKS* and his colleagues (1972). Based on the *COLEMAN*'s data, *WILEY* predicted the effects of various changes in quantity of schooling on the criterion variables (verbal ability, reading comprehension and mathematics achievement). Notably, he predicted that increasing the number of days in the school year by 5.5 percent would lead to achievement increases ranging from 8.33 to 16.42 percent. In the perspective of the thesis that we try to demonstrate here, the most important reanalysis of *COLEMAN*'s data was performed by *MAYESKE et al.* (1972) who indicated that **the joint variance** of the family and the school is far greater than the unique variance of the familial background which is a bit greater than the unique variance attributed to the school characteristics.

PHILIPS & HOWES (1987) makes similar comments concerning the effects of out-of-home child care and of familial environments:

> *"Home-rearing (no regular use of other supplemental child care arrangements) has often been used as an implicit standard against which the use of child care has been compared* (Mc CARTNEY & PHILLIPS, in press). *Alternatively, child care has frequently been studied as a separate socialization environment apart from children's homes. In reality, childrearing has become a collaborative endeavor with children moving back and forth - many on a daily basis - between their homes and child care. The effects of these two environments may be additive; they may compensate for each other; or some aspects of one may override aspects of the other in positive or negative ways. A full understanding of child development thus requires that both environments be examined. (...) In addition, there is an important methodological reason to assess the* ***joint*** *effects of child care and family environments. Parents select their children's child care arrangements. It is likely that parents with different values, finances and family structures choose child care that varies in form and quality."*

Some studies conducted in the field of child care offers findings which confirm the thesis of *COLEMAN* ; they obviously have to be considered as endeavour participating at the competitive paradigm. *KONTOS*'s work relating regulatable characteristics of child care centers to quality and children's development revealed that family background variables (SES and family values) significantly predicted developmental outcomes, while structural characteristics of the centers made virtually no contribution to development outcomes (*KONTOS*, 1987; *KONTOS & FIENE*, 1987). *GOELMAN & PENCE* (1987) have also reported that family variables superseded center quality

variables in predicting child language outcomes in a large study of child care in Canada, whereas quality variation in family day care homes was a significant predictor of children's language development. Similarly, *CLARKE-STEWART & GRUBER* (1984) reported that associations found between children's competence and features of their child care settings, such as group composition and caregiver characteristics, were substantially weakened when variance due to family socioeconomic status (SES) was removed. Alternatively, substantial effects of the quality of children's child care centers remained in the Bermuda Study (*Mc CARTNEY*, 1984; *PHILLIPS, Mc CARTNEY & SCARR*, 1987) after the influence of the parents' childrearing values was statistically removed.

Others studies have attempted to examine systematically the interaction of child care and family variables. *HOWES & OLENICK* (1986) oberved that families enrolling their children in low quality child care had more complex and presumably more stressful lives than the families using higher quality care. Moreover, both parents and caregivers of the children in low quality centers were less involved and invested in assuring that their children complied with their requests. They also found that analyses that incorporated both child care and family influences were more predictive of several child outcomes (e.g., compliance in girls, task resistance in boys) than analyses that took into account ony one set of factors.

A longitudinal study conducted in Sweden by *COCHRAN* (1977), *GUNNARSON* (1978), *COCHRAN & ROBINSON* (1983) examined the interaction of structure and process variables in both in-home and out-of-home child care settings. Il appears that children's scores on developmental outcomes measures are strongly influenced by the interaction of the following set of variables: child care structure variables (type of care), child care process variables, (social interaction with caregivers and peers), family process variables (social interaction with the mother), family structure variables (maternal marital status), and child sex. Commenting the findings of their research, *COCHRAN & ROBINSON* concluded that while previous studies

> *"have tended to view day care as an independent, causal agent operating on the lives of young children ... the day care experience is better conceptualized as an* ***intervening*** *variable (their emphasis) which mediates certain family types on the one hand (two working parents, single parent) and long-term developmental outcomes on the other."* (1983, p. 61).

Future studies could improve this research orientation. Indeed, in the *COCHRAN-GUNNARSON* 's study, the interactive effect of the child care and the family environment is evaluated with a product measure taken as criterion. It would be relevant to examine the **joint effect of the child's family background and of the caregiver's behaviors and activities on the child's activities and interactive behaviors in the setting.** This variable would be assumed to be a mediator between family background and experience, on one hand, and developmental or learning outcomes, on the other hand, as well as between caregiver's behaviors and developemental or learning outcomes. This idea is schematized in the figure 6.

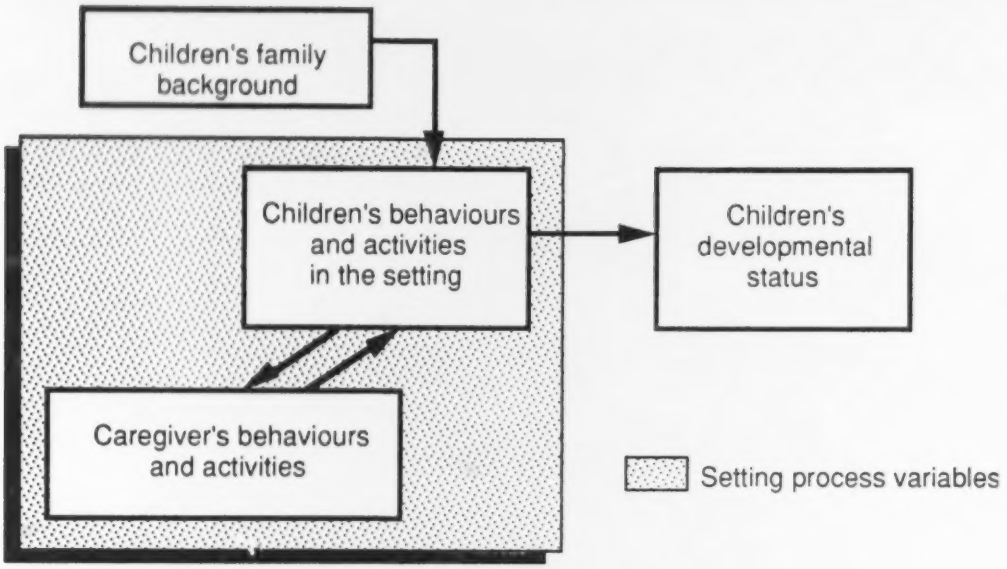
Children's family background
Children's behaviours and activities in the setting
Children's developmental status
Caregiver's behaviours and activities
Setting process variables

Figure 6

The study of *EVERSON* and his colleague (*EVERSON*, 1981; *EVERSON, SARNAT & AMBRON*, 1984) can be considered as an illustration of the appoach recommended here. These authors examined the mediating influence of mothers' positive or negative disposition to use child care on children's adjustment to child care in both center and family day care arrangements. After the children - all toddlers - had been enrolled in child care for 5 months, the results suggest that the congruence between maternal attitudes and use of child care was a highly significant predictor of children's adjustement. Mothers who relied on child care but were uncomfortable with it and mothers who felt comfortable with the use of child care but were not using it (called **inconsistent mothers**) had children who were more easily upset by a frustrating task, showed greater distress at maternal separation, and were less compliant with their mothers' requests while playing than children who had consistent mothers. The inconsistent mothers were also quicker to become angry and impatient with their children.

After 10 months in child care, attitude-behavior consistency was no longer the issue. Attitude alone predicted child behaviors. Specifically, mothers who were positively disposed toward the use of child care, compared to those who were negatively disposed, had children who were less cooperative with adults, were less compliant with their mothers, and displayed inferior approaches to a problem-solving task, regardless of whether they were in child care or not. *EVERSON* concludes :

> *"the specific effects of day care may depend in large measure on maternal attitudes toward day care and other family characteristics"* (EVERSON, SARNAT & AMBRON, 1984, pp. 90-91).

4.3. THE CAREGIVERS AT THE CROSSROADS OF VARIOUS ENVIRONMENTAL PRESSURES.

4.3.1. THE CAREGIVER AS A TIME MANAGER.

What is true for the children must be true for the caregivers: **they should be viewed as active mediators between the structural features of settings, the parental expectations, the curriculum and the children's experience in the settings.**

The influence of the curriculum on what happens in the child care settings and on children's developmental status has undoubtedly to be examined in an international study. Indeed, international comparison is one of the most appropriate procedures ro analyze the effects of different kinds of curriculum. The curriculums undoubtedly vary according to the countries but, concerning child care, we can assume that, even in the same country, we can find different kinds of child care or different curriculums (*Head Start, Montessori, High Scope, ...* in the U.S.). Moreover, some child care can operate without any explicit curriculum May be, we also can find in a country, variations between settings belonging to the same type. In the *Head Start Planned Variations Study* (see above), the researchers observed that the same curriculum was differently implemented from one site to another.

An important dimension is **the daily schedule**. This aspect of the teaching-learning process has been emphasized by several researchers as *SHULMAN & ELSTEIN* (1976), *SHAVELSON* (1976), *CLARCK & PETERSON* (1986) and *YINGER* (1979), who state that teachers, i.e. caregivers, have to be viewed as **decision-makers** or, better as **curriculum planners**.

Since CARROLL and his famous article **A model of school learning** (1963), the importance of this variable has been confirmed by numerous studies. The **I.E.A. second Math study** is one of them: the number of hours allocated to math is the most predictive school variable of achievement.

One obviously can suppose that the within-settings-type variation of the implemented curriculum will be greater in the countries where no daily schedule is defined than in those where there is a defined daily schedule. So, in a belgian pilot study, four child care settings of the same type were observed (*CRAHAY*, 1991) ; all were located in the same site. It has been observed that the relative frequencies of the different kind of activities organized by the caregivers were quite similar among the four settings, but the time allocated to them varies greatly among settings. Especcially, the total amount of time devoted to educational activities varies from 49,5 % ot the total available time to 85 %. In other words, in one of the four settings, the children spend a lot of time waiting for the caregiver preparing the material for the next activity or waiting in a file for the toiletting, and so on. It also means that the children attending this setting received 1,7 time less opportunities to learn or to develop than the children attending the setting in which 85 % of the available time is allocated to educational activities.

Although the within-settings-type variation of the implemented curriculum will

probably be weak in the countries where a daily schedule is definde, one can suppose that the variance will not be null. Therefore, even in these countries, the measurement of the time allocated to the different kind of educational activities will be a wothwhile information.

As **a mediator** between distal influence of the official curriculum, group size and adult-child ratio, equipment and material, the caregiver can be viewed as **a time manager**, who will decide how much time has to be allocated to the different educational activities that the official curriculum prescribes her to organize. She also decides how the children will be grouped (seatwork, small or large group) during these educational activities.

The underlying hypothesis can be formulated and schematized.

It is hypothized that **the better the caregiver manages the available time, the more frequently she will interact with the children and, mainly, the more the children will experience a variety of eductational activities.** Additionnally, it can be hypothized that the more frequently the caregiver organizes educational activities in small group, the more frequent will be her interactions with an individual child.

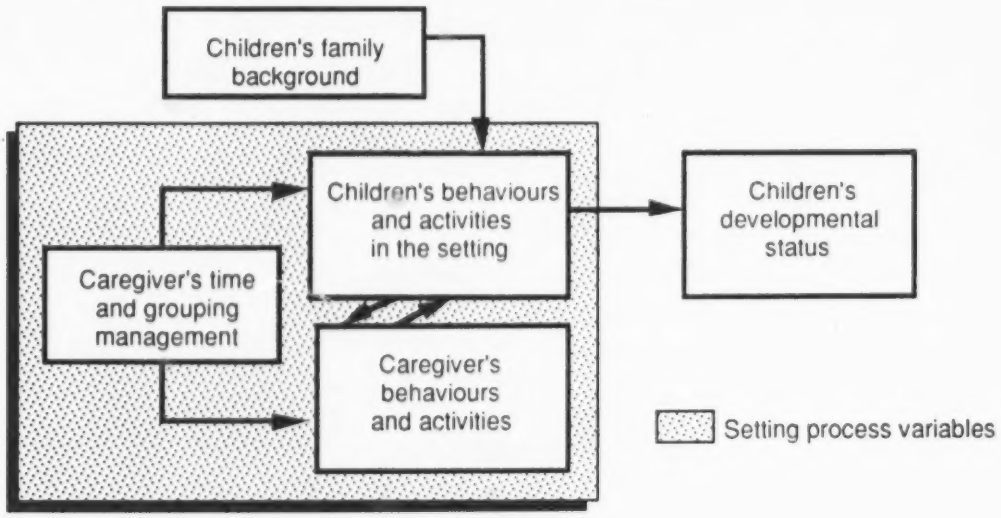
Children's family background
Children's behaviours and activities in the setting
Children's developmental status
Caregiver's time and grouping management
Caregiver's behaviours and activities
Setting process variables

Figure 7

This figure is grounded on hypotheses inspired by the findings of the **BTES** (the Beginning teacher evaluation study). In the chapter 1 of the book **Time to learn**, *FISHER, BERLINER, FILBY, MARLIAVE, CAHEN & DISHAW* (1980) present the fourteen major findings from the study Two sets of findings can be distinguish: the first one reports relationships between Academic Learning Time and student achievement; the second set covers teaching processes and classroom environment in relationship to student learning. Six of their findings can help us to clarify and precise the hypotheses of the I.E.A. Quality of life study.

Finding 1: The amount of time that teachers allocate to instruction **in a particular content area** is positively associated with student learning **in that content area** (emphasis mine).

Finding 2:	The finding of allocated time that students are engaged is positively associated with learning.
Finding 3:	The proportion of time that reading or mathematics tasks are performed with high success is positively associated with student learning.
Finding 4:	More substantive interaction between the student and an instructor is associated with higher levels of student engagement.
Finding 5:	Academic feedback is positively associated with student learning.
Finding 6:	More frequent reprimands for inappropriate behavior are negatively associated with learning.

Finding 1 emphasizes that time related to a particular curriculum area is the crucial point. In other words, the hypothesis can be formulated as follows:

caregivers who allocate more time to a particular content area of the curriculum have children who achieve at higher levels than caregivers who allocate less time to that content area.

4.3.2. ENVIRONMENTAL PRESSURES AND CAREGIVER'S EDUCATIONAL VALUES.

As **time manager** or **curriculum planner**, the caregiver is not absolutely free. First of all, she has to take into account the characteristics of the group of children that she is caring for, its size, the socio-cultural characteristics of the children, tha availability of equipment and material.

Three categories of environmental constraints will be considered in the I.E.A. Quality of life study: **group size, adult-child ration**, **equipment and materials,** and **children's group characteirstics** (average S.E.S., average age and range of ages, proportion of migrant children.

In particular, it can be supposed that group size and adult-child ration are related to the frequency of individualized interactions. However, as *GLASS* (1982) stated, group size is a necessary but insufficient conditions for individualized instruction. In other words, it means that a large group can probably be considered as an obstacle which impedes frequent individualized interactions between children and caregivers. But a small group does not force the adult to interact frequently in an individualized way with the children who he is caring for. A small group is an opportunity for good relationship between child and adult; it is not an absolute determinant.

A similar analysis could be made for **the quality of the equipment and the materials**, and **children's group characteristics**.

In congruence with the **mediational perspective** adopted here, it is supposed that the influence of the environemental (and regulatable) variables is mediated by the caregiver and especially by her educational values and expectations.

Obviously, the caregivers have their own ideas about what is good for the child's development; they have ideas about the goals they can reach or the performance they can expect from the children they are caring for. **The most the caregiver is convinced of the importance of individualized**

interactions with the children, the more he will take benefit from a small group size.

A great variety of material as well as a rich equipment are positive opportunities for the caregiver to organize stimulating activities. However, poor material environement can be compensat by a high degree of dynamism of the caregiver and some low motivated caregivers can underutilize a rich equipment.

Children's group characteristics, especially S.E.S. and the proportion of migrant children, can be influential determinant of what happens in the setting. But again, these environmental features are not absolute determinants. In most of the cases, a high proportion of migrant children and a low avrage S.E.S. will probably generate low expectations. However, some caregivers aim to struggle the socio-economical determinism and can have high expectations with migrant children and children from low-income families.

Thus, in our conceptual scheme, we will consider the caregiver's educational values and expectations as a mediating variable between the structural features of the setting (group size and adult-child ratio, equipment and material) and the way the time spent by the children in the setting is distributed among the various kind of educational activities as well as the way the group of children attending the setting is managed.

A technical difficulty will appear in order to test the previous schema. Indeed, the nature of causal links which are hypothized are not linear ones. It is not supposed that the group size, the adult-child ratio, the equipment and material and the children's group characteristics influence the caregiver's educational values , which influence the time and grouping management variable. Rather, it is assumed that the group size is a potential determinant of what happens in the setting **in conjunction** of caregiver's educational values which emphasize the importance of individualized adult-child interactions. Similarly, it is assumed that a great variety of material and rich equipment is a potential determinant of what happens in the setting **in conjunction** of high motivation of the caregivers and that effects of children's group characteristics on the within-setting process will depend on what the expectations and educational values of the caregivers are. Therefore, we have to examine the **joint effect** of these environnemental press and the caregivers' educational values.

These last hypotheses can be schematized as follows

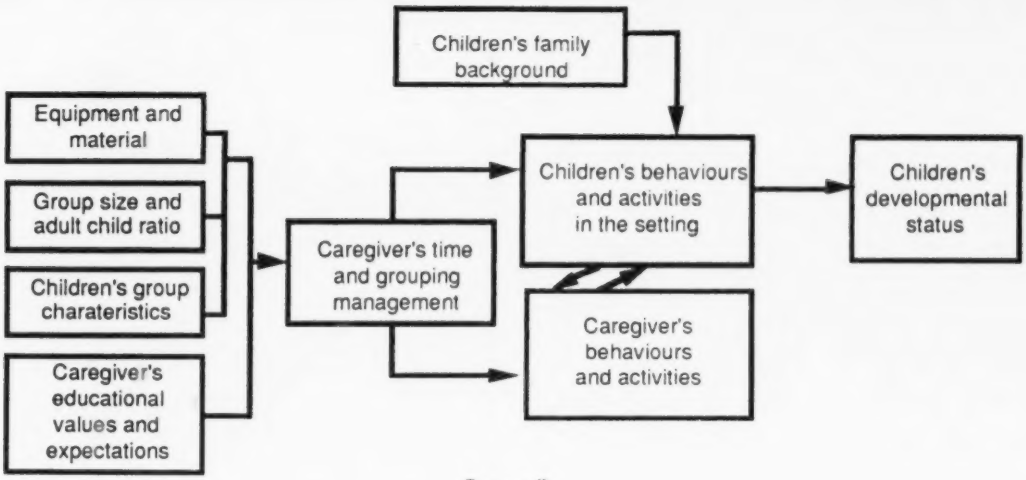
Children's family background
Equipment and material
Group size and adult child ratio
Children's group charateristics
Caregiver's educational values and expectations
Caregiver's time and grouping management
Children's behaviours and activities in the setting
Caregiver's behaviours and activities
Children's developmental status

figure 8

4.3.3. CAREGIVER'S PERSONAL ANTECEDENT AND HER EDUCATIONAL VALUES AND EXPECTATIONS

The caregiver's educational values and expectations are probably influenced by what it is commonly called the **presage variables** (*DUNKIN & BIDDLE, 1974*). Already, in the 1982 proposal, it was planned to capture a set of variables grouped under the label "adult characteristics", which correspond to the presage variables and which were supposed to have an effect on what happens in the setting. Here, we suggest to consider that these presage variables do not influence directly the in-setting process variables, but have an indirect effect by the way of their influence on the caregiver's educational values and expectations. In detailles terms, the hypothesis can be formulated as follows: **Caregiver's educational values and expectations are influenced by her previous training and education, her experience in child care as well as her age**.

The previous schema can be completed in regards of this hypothesis

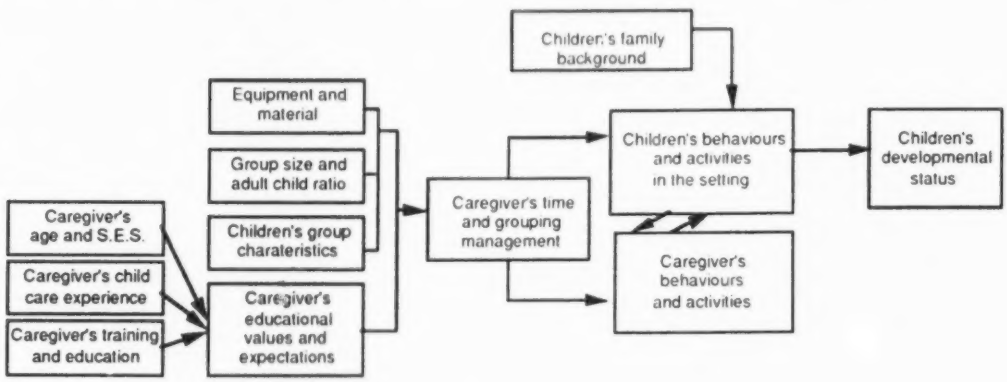
Children's family background
Equipment and material
Group size and adult child ratio
Children's group charateristics
Caregiver's age and S.E.S.
Caregiver's child care experience
Caregiver's training and education
Caregiver's educational values and expectations
Caregiver's time and grouping management
Children's behaviours and activities in the setting
Caregiver's behaviours and activities
Children's developmental status

figure 9

4.4. HARMONY AND DISCREPANCY BETWEEN PARENTS' EXPECTATIONS, CAREGIVERS' ONES and THE OFFICIAL CURRICULUM.

Parents' educational values and expectations exerce certainly a pressure on the caregivers and on how they organize the life in the setting. However, this variable has not to be considered as an additional one in regards of the group size, the official curriculum, the equipment and material and thechildren's group characteristics. The risk would be to fail to catch the dynamic and interactive nature of some ecological demands or press. What is important is the harmony between ot, at the opposite extreme, the discrepancy between the parents' and the caregivers' expectations and educational values. *HESS et al.* (1980) handle this aspect of the reality. They interviewed the parents and the caregivers on their developmental expectations (i.e., their beliefs concerning the age at which mastery of various competencies is expected to occur). They also interviewed the parents regarding their beliefs about developmental expectations of the caregivers, and vice versa. *HINDRYCKX* (1986) conducted similar research in Belgium about educational values (in a research study with *H. BROENSTRUP* of Muenster University). She analyzed the relationships between the four groups of variables: parental values, values attributed by the parents to the caregivers, caregivers' values and values attributed by the caregivers to the parents. She observed that for the parents, there is a strong correlation between their own values and those they attribute to the caregivers. For the caregivers, the correlation between their values and those they attribute to the parents is weak. Between caregivers' and parents' values, the correlation are weak. It seems therefore, that the Belgium parents believe that caregivers share their values, although this is not the case. At the opposite, it seems that caregivers are aware of these "ideological" discrepancies. Otherwise, we can estimate that caregivers have an accurate perception of the parents educational values since the correlation between parental values and values attributed by the caregivers to the parents are high.

This interactive aspect of the ecological press should retain our attention. If, for each child included in the study, we interview his/her caregivers and his/her parents about their expectations and educational values as well as about the values that the caregiver attributes to the parents, it would be possible to create an indicator of the ideological harmony of **the mesosystem**[11] **organized around each child**.

It would be of geat interest to capture an estimation of how important the parents, on one hand, the caregivers, on the other hand, judge the different competence area that we keeped as categories of the child developmental status In practical terms, it means that we would have to present to parents and caregivers items related to the various categories of outcomes listed here

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[11] This concept has been created by *U BRONFENBRENNER* (1979). To understand it , it is important to consider the definition of the microsystem too.

"A microsystem is a patern of activities, roles, and interpersonnal relations experienced by the developping person in a given settingwith particular physical and material characteristics" (p. 22). Achild care setting is a microsystem.

"A mesosystem comprises the interrelations among two or more settings in which the developping person actively participates (such as, for a child, the relations among home, school, and neighborhood peee group; for an adult, among family, work, and social life). A mesosystem is thus a sustem of microsustems" (p. 25).

above and ask them (for example, by the way of a five points rating scale) whether they expect that their child(ren) would master these competence at the end of the period of attendance of the child care setting.

Similarly, it would be of great interest to examine the official curricululm and get an estimation of how important, in regard of the official curriculum, is the mastery of the various competence that we will assess.

In the mediational perspective adopetd here, the caregiver is at the crossroads of the different environnemental press and will act as a filter of them. Therefore, neither the parental educational values and expectations, nor the official curriculum are not crucial features in order to predict what will happen in the child care setting, but **caregiver's perception the parental educational values and of the official curriculum** are. In other words, it is supposed that if the caregiver perceives the parents as having educational values different from her owns, she will be influence by this perception even if her perception is inaccurate and if the parental educational values are similar to her own. Similarly, if the caregiver perceives the official curriculum as congruent to her own values, she will act in function of this feeling even if the official curriculum present, in fact, opposite values to the caregiver's ones. So, in regards of the explanation of the contextual determinants of what happens in the child care setting, the ideological harmony or discrepancy **as perceived by the caregiver** is the main feature to study.

However, the accurateness of the caregivers' perceptions is also an important aspect of the mesosystem. Inaccurate perceptions of what the parents expect for the children caring in an out-of-home setting as well as of what the official curriculum requires of the caregivers are indicators of misunderstanding in the mesosystem. In regards of strategies of improvement of what happens in a child care setting, it is important to know if the caregiver has an inaccurate perception of the parental educational values or if, with accurate perception of them, she has divergent conceptions and is decided to act in congruence with her own values, disregarding consciously the parental expectations.

Concerning **the ideological harmony or discrepancy as perceived by the caregivers**, five possibilities can be distinguish on a logical basis; each possibilities can decomposed in two regarding the accuracy or the inaccuracy of the caregiver's perception:

Case 1: High degree of harmony between parental expectations, caregiver's expectation and the official curriculumis is perceived by the caregiver.

1.a. This perception is accurate.

1.b. This perception is inaccurate; either the caregiver perceives parental expectations as congruent with her own and it is wrong, or she perceives the official curriculum as congruent with her own and it is wrong, or she perceives erroneously both parental expectations and official curriculum as congruent with her own.

Case 2: High degree of harmony between parental and caregiver's expectations but high degree of discrepancy in regards of the official curriculum is perceived by the caregiver.

2.a. This perception is accurate.

2.b. This perception is inaccurate; either the caregiver perceives erroneously parental expectations as congruent with her own, or she perceives

erroneously the official curriculum as divergent in comparison of her own expectations.

Case 3: High degree of harmony between parental expectations and the official curriculum, but high degree of discrepancy between parents and official curriculum, on one hand, and the caregiver's educational values, on the other hand, is perceived by the caregiver.

3.a. This perception is accurate.

3.b. This perception is inaccurate; either the caregiver perceives erroneously parental expectations as congruent with the official curriculum, or she perceives erroneously the official curriculum and parental expectations as divergent from her own expectations.

Case 4: High degree of harmony between caregiver's expectations and the official curriculum, but high degree of discrepancy in regards of the parental expectations is perceived by the caregiver..

4.a. This perception is accurate.

4.b. This perception is inaccurate; either the caregiver perceives erroneously the official curriculum as congruent with her own expectations, or she perceives erroneously parental expectations as divergent from her own expectations.

Case 5: High degree of discrepancy between parental expectations, caregiver's ones and the official curriculum is perceived by the caregiver.

5.a. This perception is accurate.

5.b. This perception is inaccurate; either the caregiver perceives erroneously the official curriculum as divergent form her own expectations, or she perceives erroneously parental expectations as divergent from her own expectations.

It can be hypothized that children living in mesosystems characterizing by a high degree of perceived "ideological" harmony will experience an extra-familial setting organized in full agreement with the caregiver's ideology and will reach high level of performance in competence area valued by the caregiver.

For children living in mesosystem corresponding to the **case 2**, we can suppose that the official curriculum will be weakly implemented and that the time management in the extra-familial setting would rather be in congruence with the caregiver's expectations whatever her perception is accurate or inaccurate.

Case 3 would correspond to a feeling to be alone against parents and experts.It can be supposed that **case 3** would rarely be observed in the reality. However, if some caregivers perceive the mesosystem which exists around the children that she is caring for as having divergent conceptions from her own, it can be suspected that the setting climate will be distrubed and the quality of life negative.

Perception of the children's mesosystems corresponding to **case 5** would probably be characterized by the same kind of disturbed climate as supposed for case 3.

Perceptions of the children's mesosystems corresponding to **case 4** are supposed to be the most frequently observed situation. It would probably be

characterized by a consistent implementation fo the official curriculum, but we can fear that the contact between parents and caregiver will be problematic and that the within-setting climate will be less comfortable than in settings belonging to a mesosystem characterized by ideological harmony.

Whatever the validity of the previous hypotheses, the analysis of the degree of harmony **Vs** discrepancy between the official curriculum, parental and caregivers' expectations as perceived by the caregiver is probably a promising path of inquiry.

Symetrical analysis of the accuracy of the caregivers' perceptions is probably a necessary complementary aproach to catch indicators of the climate in the caregiver-parents mesosystem on what happens in the child-care settings. As we supposed here above, if the caregiver perceive erroneously the parent's expectations, parents will probably be unsatisfied of what happens in the setting where their children are cared and children will probably perceive this negative feeling of their parents toward the caregiver. As a consequence, their behavior in the setting will probably be influenced by their perception of their parents insatifaction.

If this last hypothesis is valid, it perhaps has to be regarded as an element of **a recursive cycle**. The less accurate will be the caregiver's perception of the parents' expectations, the less the children's behaviors in the care setting will satisfied the parents, but also the less the parents are satisfied by what their children do in the care setting, the less the children will be active in the setting and the less satisfied the parents will be.

In regards of this last hypothesis, it will be relevant to include in the study a tool in order to catch the degree of parents' satisfaction with the care setting.

Site characteristics probably influence the ideological harmony as perceived by the caregiver as well as the degree of accuracy of this perception. Indeed, the more the parents are characterized by a high level of education, the more they are likely to understand the educational values and expectations of the caregiver and of the official curriculum when these values and expectations are grounded on solid theoretical foundations.

The previous hypotheses can tentatively be schematized as follows:

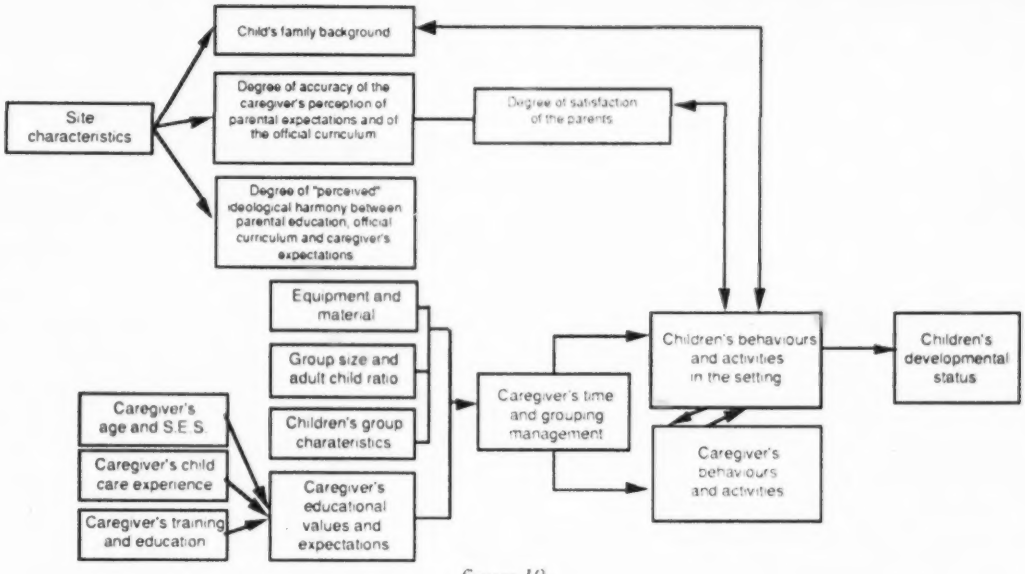
Child's family background
Site characteristics
Degree of accuracy of the caregiver's perception of parental expectations and of the official curriculum
Degree of satisfaction of the parents
Degree of "perceived" ideological harmony between parental education, official curriculum and caregiver's expectations
Equipment and material
Group size and adult child ratio
Children's group charateristics
Caregiver's age and S.E.S.
Caregiver's child care experience
Caregiver's training and education
Caregiver's educational values and expectations
Caregiver's time and grouping management
Children's behaviours and activities in the setting
Caregiver's behaviours and activities
Children's developmental status

figure 10

A side effect of analyses oriented to the ideological harmony would be that **the ecological validity** of the within-setting indicator of quality and of the developmental status measures selected could be questionned in an empirical way.

For the mesosystems characterized by a high degree of ideological harmony, it would be easy to identify a hierachy of indicators of quality shared by the community using the setting and to examine how well the setting fits this hierarchy. For mesosystem characterized by a low degree of ideological harmony, it would be possible to examine the expectations of whichever actor (parents, caregivers or experts who wrote the official curriculum) is the most satisfied. In any case, information on the hierarchy of competence area valued by parents, caregivers and the official curriculum would be a whorthwhile one.

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